

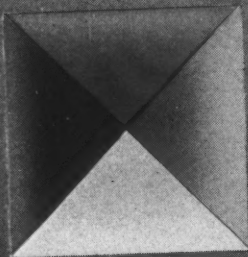
THE

# D E N T A L

## *Digest*



DECEMBER 1946



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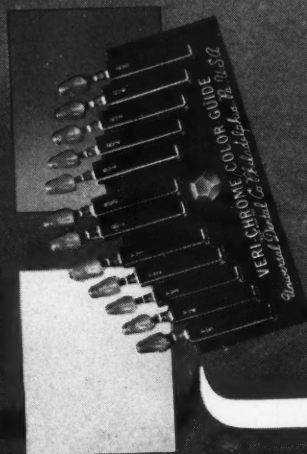
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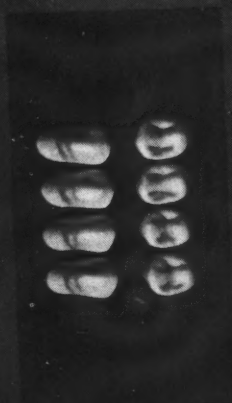
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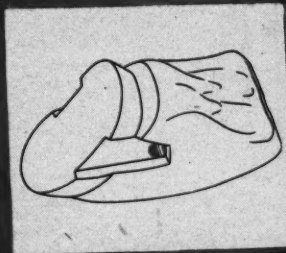
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EDWARD J. RYAN, B.S., D.D.S., *Editor*

MARIAN ZIERATH, B.S., *Assistant Editor*

708 Church Street, Evanston, Illinois

MULTIPLE ROOT RESECTION introduces a new contributor to the dental literature, HENRY SILLS, D.D.S. (St. Louis University, School of Dentistry, 1943). Doctor Sills specializes in dental surgery. He demonstrates in this issue the rationale of performing multiple root resections under certain conditions, by reporting a case in which this type of therapy was successfully employed.

CHARLES MAYNARD WOODWARD, D.D.S. (University of Southern California, College of Dentistry, 1918) was the first to describe the use of bivalve fracture buttons and elastic traction in treating fractures of the jaw. Twelve years ago he presented REDUCTION OF FRACTURES BY USE OF

SIMPLIFIED WIRING in the DIGEST. At that time, his experience in using the method had involved only a small number of patients. Currently, he discusses his method, THE USE OF FRACTURE BUTTONS, in the light of its successful application in hundreds of cases by other operators besides himself.

HARRY MAETH, D.D.S. (Columbia Uni-

versity, School of Dental and Oral Surgery, 1925) is a general practitioner. His previous contributions to the dental literature have included two which appeared in the DIGEST: CERVICAL LYMPH NODE METASTASES AND THEIR SIGNIFICANCE TO THE DENTIST in the August 1944 issue; and FIBERGLAS USED AS A ROOT CANAL FILLING MATERIAL in October 1945. This month he brings to the attention of dentists OXYCEL, A NEW HEMOSTATIC AGENT.

GEORGE A. MORGAN, L.D.S., D.D.S. (Royal College of Dental Surgeons, Toronto, 1930) presents in this issue a brief survey of SUPERNUMERARY UPPER CENTRAL INCISORS based in part on 100 cases observed in his practice of exodontics.

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# Multiple Root Resection

HENRY SILLS, B.S., D.D.S., St. Louis

*That multiple root resections can be successfully carried out under favorable conditions is demonstrated in a case report of a young aviator suffering from acute ophthalmic conditions, the result of periapical infection. Regeneration of bone around the apexes of maxillary incisors and laterals which had been subjected to root resection was shown by roentgenograms taken sixty days after operation.*

SOME DENTISTS maintain that an infected tooth, even though treated, can be nothing more than a foreign body and, hence, a potential source of further infection; others feel that proper

treatment of infected teeth, followed by surgical procedure, will eradicate infection and preserve the teeth.

It is far easier to remove a tooth, unfortunately, than to replace one; but no artificial tooth can be made so perfectly as to take the place of the natural tooth. Doctrines of preventive dentistry, like those of preventive medicine, tend to favor the preservation and stabilization of component parts of man's makeup. Is it not fitting, then, that dentists should take all possible measures to prevent the loss of even a single tooth?

## Indications for Root Resection

Each tooth must be regarded individually. Root resection therapy may be justifiably employed:

1. When anterior teeth are involved in pathologic processes.

2. When the dentist considers root canal therapy insufficient to retain the tooth.

3. When the involvement of the root lies within the apical one third.

4. When periapical infection can be eliminated if the physical condition of the patient permits.

Some clinicians deem it advisable to carry out root resections about twenty-four hours after root therapy has been instituted; others prefer to perform root resections immediately following root canal therapy. If roentgenograms show that a root resection of a posterior tooth would not involve a maxillary sinus, such surgical procedure can be extended to the bi-



Fig. 1—Roentgenogram of right maxillary incisor and lateral.



Fig. 2—Roentgenogram of left maxillary incisor and lateral.



Fig. 3—Patient before operation.



Fig. 4—Incision with flap retracted.

cuspid region. Morganstern<sup>1</sup> has reported a case of root resection of a second bicuspid which served as a bridge abutment.

#### Contraindications

1. When the supporting bone is too badly destroyed.
2. When evidence of periodontoclasia is exhibited.

#### Pathology of Periapical Infection

Pathologic processes usually occurring in periapical areas are: (1) a simple diffuse rarefying osteitis, (2) chronic abscess, and (3) apical "granuloma." When an acute inflammation occurs and no adequate treat-

ment is provided, the acute stage is succeeded by the chronic. Granulation tissue forms around the apical end; microscopically, accumulation of lymphocytes in a highly vascular connective tissue is observed with scattered large, mononuclear cells; eventually giant cells are observed. Such granulation tissue follows through successive acute stages. The osteoclasts resorb the surrounding bone. An acute exacerbation may cause the breakdown of granulation tissue so that an abscess forms.

Infection is usually caused by the streptococcus or other micro-organism. Fish and MacLean<sup>2</sup> believe, however, that in chronic stages of infection, the streptococci are limited in

their distribution to necrotic foci and that these organisms cannot live long in normal living cells. Herbert<sup>3</sup> has shown that it is possible, in favorable conditions, to free a tooth from infection by means of root resection: Cultures from a bur showed complete sterility after insertion into the periapical tissues of eleven out of twelve patients.

#### Regeneration of Bone

Large areas of bone destruction around the apex of an infected tooth may heal completely after the root has been resected. As in tooth extraction, bone is regenerated by the organization of a blood clot which fills the existing cavity. This repair of bone is

<sup>1</sup>Morganstern, Bernard: Interesting Root Amputation Cases, D. Items of Interest 59:534-538 (June) 1937.

<sup>2</sup>Fish, E. W. and MacLean, I.: The Distribution of Oral Streptococci in the Tissues, British D. J. 61:336-362 (September 15) 1936.

<sup>3</sup>Herbert, W. E.: Result of Root Resection, D. Record 57:250-257 (May) 1937.



Fig. 5—Window cut in alveolar plate exposing apical end of roots.



Fig. 6—Roots resected and bone curetted.





Fig. 7—Flap sutured to place.

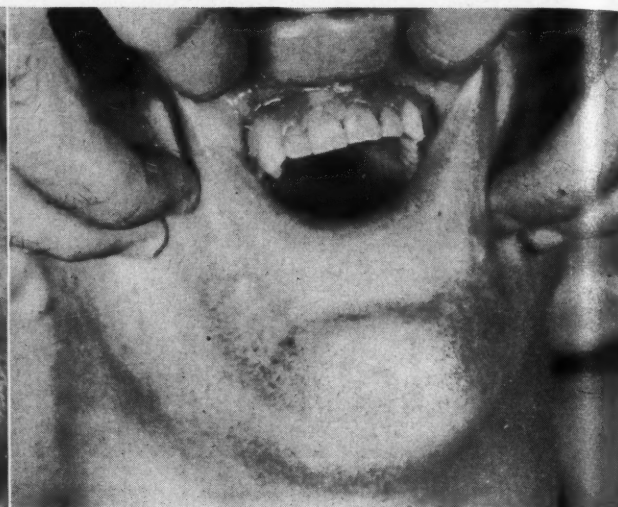


Fig. 8—Tenth postoperative day; sutures removed.

preceded by osteoclastic resorption of the root end and the bone trabeculae. The fibroblasts accompanying delicate capillaries in the adjacent bony trabeculae penetrate and traverse the clot. This young connective tissue lays down new bone. Where the periodontal membrane has been destroyed at the apical end of the root, normal periodontal membrane results upon the deposition of cementum on the dentine of the formerly infected but properly filled root. This restoration of the "apical" periodontal membrane follows the irregular deposition of young bone trabeculae in the area of the bone wound.

The remodeling of the periodontal structures is brought about by the functional stresses played upon the tooth. This factor causes the resorption of the disorderly scattered bony trabeculae and stimulates the restoration of the periodontal tissue around the new apical end of the tooth. Bone-like cementum grows over the apical end and attaches the root end to the newly formed fundus of the alveolar socket.<sup>4</sup> (It must be emphasized that the above-mentioned functional stress should not be damaging but limited to its physiologic capacity.)

#### Case Report

W. L. A., an aviator aged 21, pre-

<sup>4</sup>Bauer, W.: Microscopic Findings on Teeth and Parodontal Tissue in Experimental Root Resection with Special Consideration to the Importance of Functional Stresses, *Ztschr. f. Stom.* 23:122-135, 1925.

sented himself complaining of iritis.

**Ophthalmic Symptoms and Treatment**—Examination showed photophobia and lacrimation of the right eye. A hemorrhagic condition of the cornea developed after three days. The patient was examined for abrasion of the cornea and treated for this condition. The redness cleared slightly but he continued to complain of something foreign in his eye. Ten days later, redness recurred and the patient had considerable pain. The next day, he showed a marked photophobia, slight lacrimation, and moderate redness around the cornea. That night the pain in the eye was so severe that sleep was impossible.

Two weeks after his original complaint, all symptoms were aggravated. The patient was then hospitalized. Pain was referred to the right eye and radiated to the forehead and temporal area; vision was greatly impaired. The diagnosis of his condition was iritis which, as its etiology infers, depends upon some systemic disorder and/or upon a toxin derived from a septic focus in some part of the body. The treatment prescribed by the physician was hot packs to the involved area, sulfathiazole 2 grams daily, and atropine drops to the right eye. Two days later the eye condition was unchanged but the patient felt more comfortable. At this time he was seen by me in consultation.

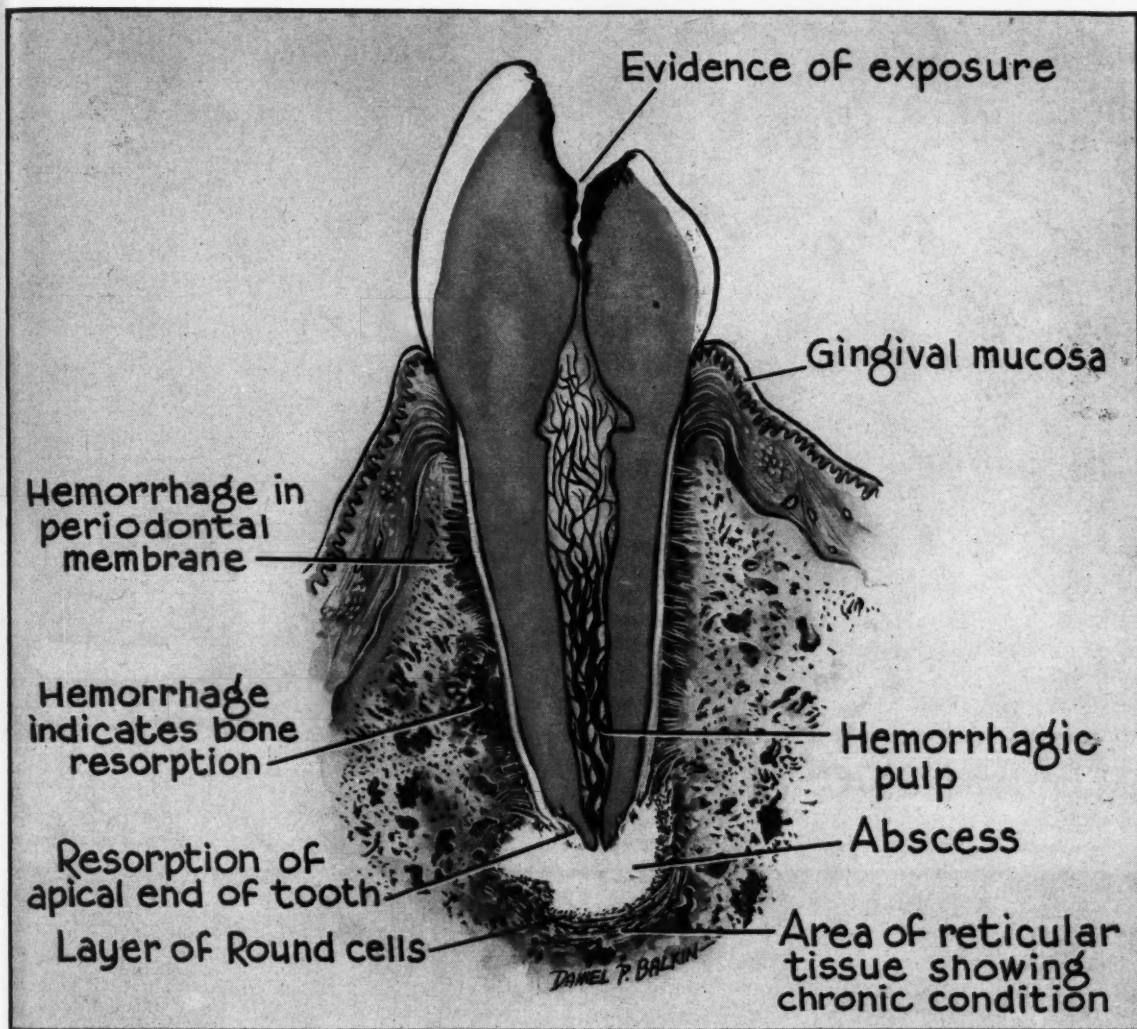
#### Dental Symptoms and Treatment—

On examination it was noted that his maxillary incisors and laterals showed dullness instead of the usual translucency. Roentgenograms of these suspect teeth disclosed that they had received root canal therapy and that there was periapical infection (Figs. 1 and 2).

(Periapical abscesses may appear as dark, localized, or diffused areas about the apical end of roots. An acute apical abscess may fail to show signs of bone resorption because the destructive process has not yet involved the bone or rapid drainage has been established. When this type resolves into the chronic form, it appears as a dark, diffused area, indistinct and irregular in outline and similar to a granuloma.)

Roentgenograms showed a chronic condition present with a granuloma in the right central, the left central, and the lateral teeth of the maxillary arch. The right maxillary lateral exhibited a blind abscess which undoubtedly was discharging into the blood and lymph streams. This extended far into the infra-orbital area, initiating drainage on the right eye and puffiness of the area.

A soft diet and 1.5 grains phenobarbital every six hours were prescribed. It was decided to wait before attempting a multiple resection, since the patient was weak, nervous, and apprehensive. Two days later, the patient was ready for operation. Mor-



phine sulfate  $\frac{1}{8}$  grain and atropine  $\frac{1}{150}$  grain were administered one-half hour prior to operation.

1. The mucosa and gingival tissues were painted with tincture of merthiolate.

2. Anesthesia by a right and left infra-orbital block with  $1\frac{1}{2}$  cubic centimeters of 2 per cent procaine hydrochloride for each injection was used.

3. An incision was made from cuspid to cuspid, extending below the frenum labium (Fig. 3).

4. The flap was retracted with periosteal elevators which exposed the periosteum of the maxillary alveolar plate (Fig. 4).

5. With a surgical bur number 41, a window was opened into the bony plate which extended from cuspid to cuspid, and the apical ends of the

roots of the involved teeth were exposed (Fig. 5).

6. With a crosscut fissure bur number 558, the roots were resected; the periapical areas were curetted; the area was irrigated with a constant stream of saline solution to remove debris (Fig. 6).

7. The area and the resected ends of the roots were then swabbed with 28 per cent ammoniacal silver nitrate and reduced with eugenol.

(In the literature, it has been found that phenol, which has great penetrating depth, is most often used for cauterization. It is not entirely possible to counteract the degree of penetration by the use of alcohol. Silver nitrate, on the other hand, is superior in that it will penetrate only as far as necrotic tissue exists and stop at the line of demarcation be-

tween the necrotic and healthy tissue.)

In this case, there had been much necrosis of the bone which could not be reached by instrument curettage. The use of a chemical agent had to be employed which would assure that the toxins and necrotic elements in the interstitial spaces would be reached without causing any damage or sloughing of healthy tissue. Silver nitrate seemed to be the logical medicament.

Sulfathiazole powder was sprayed into the wound and the flap was sutured with a nylon dermal suture number 000 (Fig. 7). The patient was put back to bed, and ice packs were applied over the mouth for thirty-minute intervals for the remainder of the day. Ten grains of aspirin every three hours and a liquid diet with a high vitamin C content were prescribed.



*Fig. 9—Right maxillary incisor and lateral on tenth postoperative day.*



*Fig. 10—Left maxillary incisor and lateral on tenth postoperative day.*



*Fig. 11—Right maxillary incisor and lateral sixty days after operation showing regenerated bone.*



*Fig. 12—Left maxillary incisor and lateral sixty days after operation showing regenerated bone.*



**Postoperative Condition**—On the day following the operation, no discoloration, pain, temperature, or swelling was noted. The patient's mental attitude was greatly improved. Hot magnesium sulfate packs at thirty-minute intervals were prescribed and the aspirin medication was withdrawn. The patient's vision seemed normal three days postoperatively. The eyes appeared clear and the general reaction favorable. On the seventh postoperative day, the patient passed

his aviation eye examination. Sutures were removed and the patient was released. The gingiva was well healed on the tenth postoperative day (Figs. 8, 9, and 10). The patient reappeared in sixty days for a roentgenographic checkup which showed a normal regeneration of bone (Figs. 11 and 12). The condition of the patient was excellent.

### Conclusion

1. Root resections of the type ex-

plained here are not normally advocated.

2. Results obtained in the case reported, however, prove the logic of the procedure under favorable circumstances.

3. The number of teeth that may be resected in any given patient's mouth is unlimited.

4487 Westminster Place

## Cooking Foods in Fluorine-Containing Water

INTEREST in the use of fluorine to improve the condition of the teeth is widespread.

### Newburgh-Kingston Experiment

New York State is now conducting a mass experiment by incorporating measured quantities of fluorine in the water supply of the city of Newburgh, having begun the undertaking two years ago. Nearby Kingston serves as a control, no fluorine being added to its water supply. Fluorine content of the water of the two cities is comparable, with approximately 0.12 part per million, a low level of fluorine. The content of fluorine in Newburgh water will be increased to 1.0 part per million, a moderate quantity thought not to produce any harmful effects. By continuing the experiment for at least ten years with periodic examination of the teeth, particularly those of growing children and infants, many useful data are expected.

### Fluorine Toxicosis

Whereas a small amount of fluorine is believed to exert a favorable influence in preventing caries of the permanent teeth, there are certain localities where fluorine contaminates water and food to an extent that constitutes a real health problem. Intoxication with the element, fluorine toxicosis, or fluorosis, is general among the people and livestock of several areas of our country. It is also prev-

alent in other districts throughout the world.

The most obvious defects caused by the disease are seen in the teeth which, during growth, become mottled with opaque white patches, often with brown, tobacco-like stainings. Despite their peculiar appearance, these mottled teeth are particularly resistant to decay. Accordingly the intake of fluorine is of great importance: (1) If the individual takes too much, toxic manifestations occur; and (2) if too little, the condition of the teeth deteriorates. Methods are available, fortunately, for removing excessive fluorine from water, as by specially-prepared bone-meal filters.

### Fluorine in Cow's Milk

Two cows, a Guernsey and a Jersey with moderately low milk production records, were given water of known fluorine content to drink during a short experimental period. A small but definite increase in fluorine of the milk occurred, but the actual amount transmitted to the milk was low and not especially toxic. Even where the water supply contained a quantity of fluorine as high as 500 parts per million, far in excess of that found in any water supply, these observations held true. However, where water contained 55 parts per million or more of fluorine, it became salty to the taste, the cows refused all but a minimum quantity, and their

output of milk decreased sharply.

### In Soil and Cooking Water

Crops of grain, vegetables and hay raised on soil to which fluorine had been added generally showed a small increase in fluorine content. This increase was not proportional, however, to the quantity added to the soil.

Several vegetables, including beans, beets, brussels sprouts, cabbage, cauliflower, potatoes, spinach, and squash, and also oatmeal, were purchased locally and cooked in water containing the following amounts of fluorine: none, 5 parts per million, and 24 parts per million. Results of the study revealed that the *foods cooked in fluorine-containing water increased in fluorine content*; also the increase was proportional to the amount in the cooking liquor.

### Conclusions

These findings are in agreement with the view that (1) milk or plant foods produced on soils with excessive fluorine do not *per se* usually contain harmful amounts of the element; (2) the fluorine content of water used for cooking, however, is an important consideration; and, it might be added, especially so if any concentration of fluorine-containing water takes place during the cooking operation.

—From *Nutritional Observatory*, 7:52-53 (September) 1946.

# The Use of Fracture Buttons

C. MAYNARD WOODWARD, D.D.S., Pasadena

*Elastic traction applied with fracture buttons minimizes discomfort to the patient by shortening the period during which traction is required and thus permitting normal jaw function sooner after fracture. At the same time, the necessarily accurate healing of the fracture is accomplished.*

*More than a decade of noteworthy results has established the superiority of this technique over rigid wiring in most cases of maxillary and mandibular fractures.*

EXPERIENCE has shown that in possibly 75 per cent of cases, fractures of the mandible and maxilla can be accurately reduced with little discomfort to patients by the use of bivalve fracture buttons and elastic traction. This method of treating fractures of the jaw was first described in the DENTAL DIGEST in 1934<sup>1</sup> at which time the method had been used on a relatively small number of cases in my office only. Since then, however, the method has been used successfully

<sup>1</sup>Woodward, C. Maynard: Reduction of Fractures by Use of Simplified Wiring, THE DENTAL DIGEST 40: 314-315 (September) 1934.

in hundreds of cases by a number of different operators, both in private practice and in the Armed Services.

## Applicability

The method can be used wherever the rigid wiring technique would be applicable. It is of limited use where the teeth are not in reasonable occlusion. It cannot be used in edentulous or nearly edentulous cases or where the teeth have been loosened or so badly injured that they will not sustain the force of the elastic traction.

## Method of Applying Wire

The wire used may be of very small gauge, number .012 or .010. A piece of this wire, approximately seven inches long, is bent over one end to make a loop, hooked through a loop of dental floss and held (Fig. 1). The dental floss is then grasped with a Kelly forceps or curved hemostat (Coker) with the other hand, held taut, and worked into the interdental space. Then the wire is dropped and the other end of the dental floss is grasped with the fingers. While the end of the hemostat is still being held on the lingual side of the arch, the dental floss is pulled taut and worked

into the next mesial or distal interdental space.

The dental floss now completely encircles the mesial, distal, and lingual surfaces of the tooth. The wire is next grasped with one hand and the dental floss with the other, the floss is pulled taut, and the wire drawn between the teeth with a quick movement (Fig. 2). The wire is now around the tooth. The free ends are trimmed off equally, then (Figs. 3 and 4) inserted into the two small holes which are on one side of the bivalve buttons.

The convex side of the button is held toward the tooth and the closed edge of the button toward the gingival line. The button is pushed up to the buccal surface of the tooth; the Grubb wire twister is applied to the wire which is drawn taut on the twisting device and then twisted tightly against the tooth (Figs. 5 and 6). (This wire twister, devised by Doctor R. A. Grubb, Glendale, California, is almost a necessity for use with these buttons and this fine gauge wire in that it allows for twisting the wire tightly without breaking the wire). After the wire has been twisted into place, it is cut close to the but-

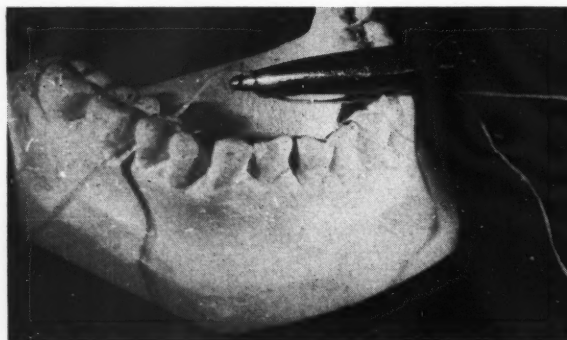


Fig. 1—A strand of .010G malleable stainless steel wire is hooked through a loop of dental floss and passed through interdental space.

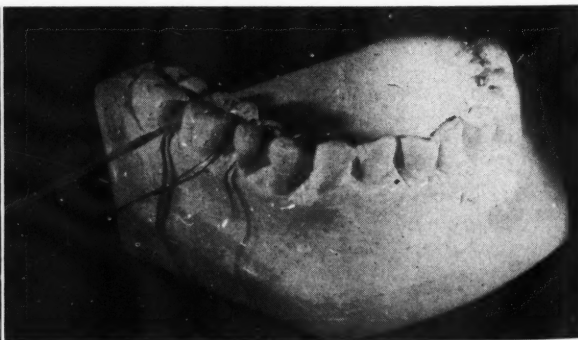


Fig. 2—The dental floss and wire are held taut as wire is pulled around tooth.



Fig. 3—Free ends of wire are threaded through holes in fracture button.



Fig. 4—Wires ready to be twisted.

ton, just enough wire being left to hold the button in place. The cut-over portion is then bent down into the button and the button is closed with a hemostat (Figs. 7 and 8).

#### Applying Elastic Bands to Buttons

In this manner, buttons are applied to as many teeth as necessary. After the proper number have been attached to the teeth, elastic bands (Fig. 9) are looped over the buttons. It should be noted that the rubber bands are looped over the *entire button* and are not inserted between the leaves or the opening of the button as might be evident to, and has been done by, some operators. If the rubber is inserted into the crack or opening of the button, it will shear off the outer shell, making the device useless.

Bands may be extended from a button in one arch to a corresponding button in the other arch, or to a button either mesially or distally placed

from the first button (Figs. 10 and 11). Thus the correct traction can be obtained to bring the jaw into the desired position. The direction of pull may be altered from day to day to suit the case if it is found that the original estimate of position is wrong or is causing pain.

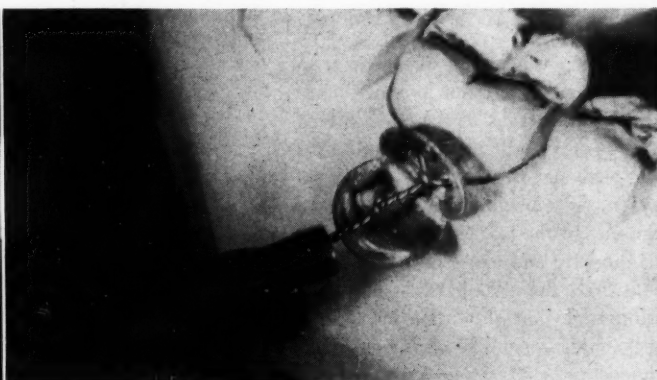
#### Functioning of Elastic Traction

After using the fracture buttons in a number of cases, it was discovered that it was not necessary, in most instances, to reduce the fracture manually. This was because just a few rubber bands, pulling in the right direction, within twenty-four hours released what would ordinarily be considered a very strong impaction of the fragments and bring the jaw into its proper place. It does not require an excessive amount of force to hold the teeth in occlusion in the average type of fracture, as the normal muscle pull usually helps rather than hinders reduction.

It was feared at first that the use of elastic traction would extract the teeth from their sockets, but normally strong teeth were found to withstand safely the traction from the rubber bands at least long enough to bring the teeth into occlusion, a period usually not more than twenty-four hours. After the teeth have occluded, there is no longer any sustained traction on an individual tooth since the occlusal surfaces rest together and overcome this traction. Elastic traction should not, however, be placed on teeth that do not have an occluding tooth in the opposing arch; or, if there is a vacant space opposite an anchor tooth, a block of compound or metal should be put in this space to rest the occlusion of the teeth when the fracture is reduced.

#### Advantages Over Rigid Wiring

The fracture buttons, being smooth to the cheek, allow for brushing of



Figs. 5 and 6—Wire is twisted into button with Grubb wire twister.





Fig. 7—Button is closed by bringing covers together with hemostat.



Fig. 8—Button closed and ready for application of rubber bands. (Note: Open edge of button is toward occlusal side of tooth.)

the teeth (with a moderately stiff toothbrush); the mouth can also be syringed out and kept reasonably clean at all times. Oral hygiene is quite different here from what it is where the jaws are rigidly wired. There is not the tendency to catch food particles as when exposed wire ends are in the mouth. Neither is it necessary to put wax or other covering over the teeth to protect the cheek.

Another advantage of elastic traction is that it does not loosen. One of the disadvantages of the rigid wiring of any type is that a few hours after the teeth have been brought into position, the constant movement of the muscles of the jaw causes a loosening of the wire and consequently the jaw falls into the wrong occlusion. The rubbers do not allow this loosening; they hold the jaw in occlusion at all times.

It is also surprising and gratifying

to learn that it is not necessary to keep the parts immobile for from six to eight weeks as in the case of the fractured femur or tibia or even an arm bone, because the jaw bones do not have to sustain the stresses of the arms or legs. The normal use of the mouth does not tend greatly to displace the fragments in a fractured jaw under ordinary circumstances. In single fractures, a reasonably hard callous is formed in some instances as early as ten days after the fracture has occurred; and a sufficiently firm union is present by that time to permit the patient to open and close the mouth to eat soft foods and even to take the rubber bands off the fracture buttons during meals and replace them after eating.

#### Duration of Traction Treatment

As a rule, in cases of single fractures the buttons are left on until it is certain that the fracture is completely solidified. This takes place in most cases after three weeks, at the longest, and many times in fourteen days.

In multiple fractures, of course, there is a different problem: Some of the muscles may be straining to displace a loose fragment from its normal position and the movement of the jaw may be too great to allow proper healing. In these cases, some rigid form of retention may be necessary such as an interdental splint.

However, even with the use of interdental splints, the fracture buttons are frequently fastened to the opposing arch, if it is not injured.

The sooner the patient can begin



Fig. 9

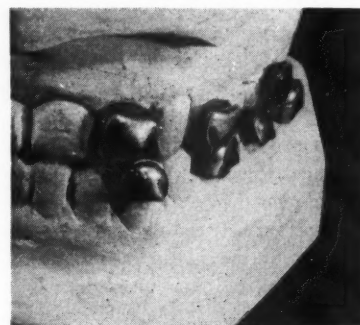


Fig. 10

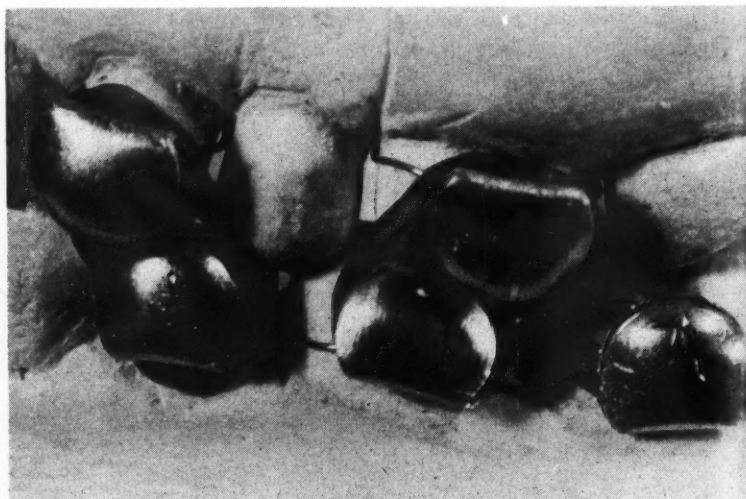


Fig. 11

Figs. 9, 10, and 11—Teeth locked in occlusion by rubber bands looped over buttons; desired direction of force is obtained by variation in placement of rubbers.

using his jaws, the more rapidly healing can take place because nutrition improves. While the patient with a fractured jaw can take sufficient nutriment in liquid form, psychologically he rebels against it and craves solid food. If this can be supplied, he is happier and seems to respond more quickly to treatment.

It has been found that there is no danger in removing the rubber bands after ten days and testing to see how solid the fracture has become. The movement of the mandible may be checked and, then, if the fracture is not sufficiently united the rubber bands may be slipped on again. Patients themselves can be trained to remove and replace these rubber bands. After two weeks, in nearly all cases, the patients can dispense with the rubber bands during the day and put them on only at night to support the jaw during sleep. This is certainly a boon to the patient; and if he has ever had his jaws tightly wired together before, he always expresses appreciation of this more comfortable method of treatment.

#### Specific Treatment Problems

Where there is a fracture in the midline and a tendency to separation of the parts is evident, the buttons may be applied to the cuspids or even the lateral incisors in the same arch and a rubber band brought across the fracture line to close the opening, if no teeth have been lost in this frac-

ture line. Sometimes, in a fracture of the superior maxilla, a fragment is pushed lingually. This can sometimes be brought buccally by putting a button on the lingual surface of a molar tooth in the misplaced fragment and extending the rubber band across the occlusal surface and attaching it to the button on the buccal surface of the opposing lower molar.

In a case of very small fragments, free at both ends and containing perhaps three of four teeth, the wire may be drawn through the interdental space by resting the hemostat close to the surface of the teeth and at a right angle to the diameter of the teeth and winding up the dental floss as on a windlass, the wire being pulled through without any tension on the fragment. In this way painful manipulation of the fragment is avoided and the fracture is not broken loose with the occurrence of hemorrhage and pain.

#### Comments

The application of these buttons is so easy and disturbs the patient so little that, except in cases of extremely apprehensive people, no anesthetic is necessary. The application of the wire is no more painful than the use of dental floss on the teeth. One of the drawbacks of the method, of course, is that it is very difficult to retain these buttons on any teeth anterior to the bicuspid; however, it is almost equally difficult to do any type of wir-

ing on the anterior teeth unless they happen to be shaped favorably. This is especially true of the lower anterior teeth. In a large percentage of cases, however, it is not necessary to use any traction on the anterior teeth since the bicuspid and molars will, if brought into proper occlusion by the use of elastic traction, automatically bring the anterior teeth into position.

#### Summary

The advantages of reduction by the use of fracture buttons are: (1) rapidity, (2) cleanliness, (3) lack of painful manipulation, (4) ability to change the direction of traction at will, (5) examination of results at will and at an early date, (6) the ability to eat soft food at an early date, and (7) comfort to the patient in that there are no rough edges to catch food and irritate the cheek.

Two additional advantages not referred to previously are: In case a general anesthetic has been used for the reduction of the fracture, the elastic traction allows the patient to open the mouth enough to expel vomitus resulting from postanesthetic nausea; and the method may be used in conjunction with other forms of fragment retention, such as headcaps, interdental splints, or circumferential wiring.

634 First Trust Building.

### ANNOUNCEMENT OF BOOKS RECEIVED

- MANUAL FOR DENTAL TECHNICIANS, By J. A. Salzmann, D.D.S., First Edition, Second Reprint, St. Louis, The C. V. Mosby Company, 1946.
- DENTISTRY—AN AGENCY OF HEALTH SERVICE, By Malcolm Wallace Carr, D.D.S., First Edition, New York, The Commonwealth Fund, 1946, Price \$1.50.
- IMPRESIONES EN ODONTOLOGIA, By Miguel Saenz de Pipaón Y Tejada, D.D.S., M.D., First Edition, Madrid, Sucesores de Rivadeneyra, S. A., 1942.
- ORAL DIAGNOSIS AND TREATMENT, By Samuel Charles Miller, D.D.S., Second Edition, Philadelphia, The Blakiston Company, 1946, Price \$10.00.
- ACRYLICS AND OTHER DENTAL RESINS, By Stanley D. Tylman, M.S., D.D.S., and Floyd A. Peyton, Ph.D., First Edition, Philadelphia, J. B. Lippincott Company, 1946, Price \$10.00.
- PSYCHOBIOLOGIC FOUNDATIONS IN DENTISTRY, By Edward J. Ryan, B.S., D.D.S., First Edition, Springfield, Illinois, Charles C. Thomas, Publisher, 1946, Price \$3.00.

# The Editor's Page

SINCE THE time that Ponce de Leon searched vainly for the Fountain of Youth, man has been hoping that he might find some mystic potion that would turn time back and help him recapture the days of his past glories. Fakers and quacks have capitalized on this longing of man for youth and rejuvenation. Monkey glands, testicular implants, sera and pills have been bought in extravagant numbers.

One fact is clear: Man was made to die; death is something that cannot be prevented. Comfort in the living, however, can be improved by using many of the discoveries of modern biochemistry. For example, women who have suffered from the tortures of the climacteric have been relieved by the use of estrogens. Men, on the other hand, have been so full of the false pride and the pomp of virility that they have been reluctant to admit that they, too, suffer from the syndrome associated with the "change of life." Men, according to Werner,<sup>1</sup> are as subject to the climacteric syndrome as are women when there is a decrease of function or a malfunctioning of the sexual glands. And, as in the case of women, men may be relieved from their climacteric distresses by the use of the sex hormone—in their case, testosterone propionate.

Because dentists in middle life are as subject to the vagary of the climacteric as are other men, they may be better able to understand some of their own disturbances if they have a better knowledge of the syndrome. This same knowledge that aids the dentist in his understanding of himself will aid him in his interpersonal relationships with other middle-aged men—his associates and his patients. Werner, in his report of 273 cases of the male climacteric, sets the average age of his patients at 53.7 years. Of this number 177 received intramuscular injections of testosterone propionate. Of these patients, 173 reported improvement in their general condition.

The hypogonadal syndrome represents an imbalance of the endocrine-autonomic nervous system. The symptoms of the syndrome are roughly placed in three groups: nervous, circulatory, and general.

In the order of their frequency among 273 men, Werner lists the symptoms in this order:

	%
1. Nervousness, subjective .....	90.5
2. Potency decreased or absent .....	90.1
3. Libido decreased or absent .....	80.5
4. Irritability .....	80.2
5. Fatigability and lassitude .....	80.2
6. Depression .....	77.2
7. Memory and concentration decreased ...	75.8
8. Sleep disturbed .....	59.3
9. Loss of interest .....	58.5
10. Ill at ease .....	56.4
11. Tachycardia, palpitation and dyspnea ...	51.2
12. Excitability .....	49.0
13. Vertigo .....	46.5
14. Numbness and tingling .....	43.9
15. Occipitocervical aching .....	41.9
16. Fear .....	40.6
17. Worry, unnecessary .....	33.7
18. Cold hands and feet .....	32.9
19. Vague pains .....	32.9
20. Headache .....	31.8
21. Itching .....	31.8
22. Hot flushes .....	29.3
23. Loss of self-confidence .....	27.1
24. Futility .....	27.1
25. Scotomas .....	26.0
26. Constipation .....	24.9
27. Unsociability .....	23.8
28. Obesity .....	21.5
29. Aching in the vertex .....	17.5
30. Sweating .....	17.9
31. Crying .....	15.3
32. Tinnitus .....	10.6
33. Thoughts of self-destruction .....	7.4
34. Chilly sensations .....	6.2
35. Self-accusations .....	2.4
36. Psychosis .....	2.4
37. Suicide attempted (2 patients)	

Testosterone propionate is not a cure-all for the ills of the middle-aged man. In fact, if the drug is used, it should not be forgotten that there is some evidence that suggests that increases in the amounts of the sex hormones by therapeutic injections may increase the tendency to malignant disease. To develop malignant disease would be to pay a heavy price for relief from some of the distresses of the climacteric.

<sup>1</sup>Werner, August A.: The Male Climacteric, J.A.M.A. 132:188-194 (September 28) 1946.



# OXYCEL, A New Hemostatic Agent

HARRY MAETH, D.D.S., Mosinee, Wisconsin

*Interference with operative and treatment procedures by bleeding gingivae or other tissues is simply and effectively overcome through the use of an absorbable, hemostatic agent which adheres readily to the bleeding area. The dental uses of this material which can be advantageously applied are enumerated here.*

OXYCEL\* DESIGNATES oxidized cellulose. It is prepared from such materials as gauze or cotton by a special process of oxidation which converts unoxidized cellulose into polyanhydroglucuronic acid, an absorbable, hemostatic chemical.

## Description

1. Oxidized cellulose in the form of sterile pads (Oxycel) acts as an effective hemostatic agent when applied to oozing surfaces. When left in contact with incised tissues, it is readily absorbed.

2. The material has about the same texture as unoxidized gauze or cotton but is more pliable and easier to pack into bleeding wounds than the parent material.

3. Oxycel, when wet with blood, becomes slightly sticky, swells and forms a dark brown gelatinous mass. When such discoloration occurs, bleeding usually ceases.

4. Oxycel is subjected to rigid chemical, biologic, and bacteriologic tests before and after processing and finishing. It is supplied in individual glass vials, each containing one sterile pad.

## Hemostatic Action and Absorbability

The specific hemostatic property of Oxycel depends on formation of a

coagulum consisting of salts of polyanhydroglucuronic acid and hemoglobin.<sup>1</sup> Oxycel implants in connective tissue, muscle, bone, serous and synovial cavities; in the brain, thyroid, liver, kidney and spleen were found in experiments to be completely absorbed in varying lengths of time, depending upon (1) the amount of material introduced, (2) extent of operative trauma, and (3) the amount of blood present.<sup>2,3</sup>

Other investigators<sup>4</sup> in their recent research describe the disintegration and absorption of Oxycel in the following manner: "When implanted in tissue or when in contact with tissue fluids or blood, Oxycel forms a coagulum. In this manner, it produces local hemostasis. Following the initial hemostatic effect, Oxycel is quickly

changed into a dark brown, soft mass, which in turn becomes jelly-like, colloidal material. Subsequently, the jelly-like mass becomes thin, forming a water-like pigmented fluid which either diffuses or is taken up by phagocytosis into the general tissue fluid circulation."

## Dental Uses of Oxycel

1. If the bleeding operative wound is a large one, Oxycel either in a single piece or in smaller pieces which are pliable and easily packed, may be used to fill the cavity. Sutures may then be placed. To control further oozing effectively, another piece of Oxycel may be placed on the surface. To assure a dry uncontaminated area in the mouth, an impression compound splint, previously described,<sup>5</sup> may be applied. Portions of undissolved Oxycel can subsequently be removed without initiating fresh bleeding.

2. To control bleeding in gingival

<sup>1</sup>Frantz, V. K., and Lattes, Raffaele: Oxidized Cellulose—Absorbable Gauze, J.A.M.A. 129:98-801 (November 17) 1945.

<sup>2</sup>Yackel, E. C., and Kenyon, W. O.: The Oxidation of Cellulose by Nitrogen Dioxide, J. Am. Chem. Soc. 64:121-127 (January) 1942.

<sup>3</sup>Unruh, C. C., and Kenyon, W. O.: Investigation of the Properties of Cellulose Oxidized by Nitrogen Dioxide I, J. Am. Chem. Soc. 64:127-131 (January) 1942.

<sup>4</sup>Gruhlitz, O. M.; Bruce, M. R.; and Doub, L.: To be published.

<sup>5</sup>Maeth, H.: Applying Penicillin to Tooth Sockets, THE DENTAL DIGEST 51:566 (October) 1945.

## Advantages of Oxycel over surgical gauze:

1. Oxycel is more pliable and easier to pack into a bleeding wound.
2. When used dry, it becomes saturated with blood and swollen, filling the cavities in the wounds and facilitating packing.
3. Because of an apparent affinity for hemoglobin, the Oxycel turns brownish black and controls bleeding more rapidly than surgical cotton or gauze.
4. Oxycel's hemostatic action does not depend on clotting or fibrin formation since the packing, swollen and sticky with blood, acts itself as a clot.
5. Removal of surgical gauze twenty-four to forty-eight hours after packing usually requires force and results in a recurrence of bleeding; Oxycel can be gently scraped or irrigated away with practically no danger of further hemorrhage as the wound surface is covered with a thin film of coagulum.
6. Oxycel is not incorporated in the scar when healing takes place and, therefore, scarring is minimal.

\*A product of Parke, Davis & Company.

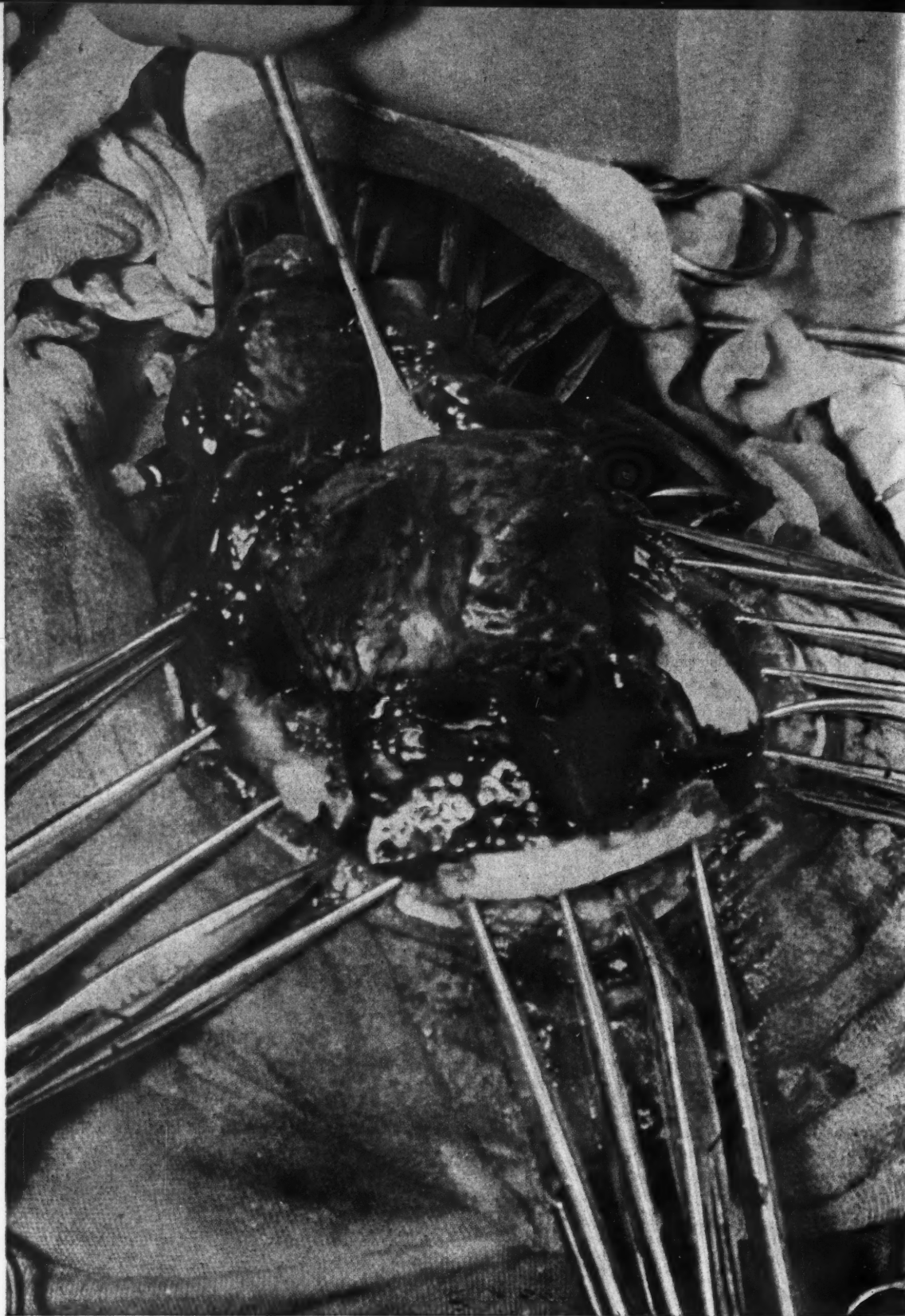


Fig. 1—(Illustrations reproduced from *Therapeutic Notes* by courtesy of Parke, Davis & Company.) Control of hemorrhage in neurosurgical procedures, as in all other forms of surgery, is significantly facilitated by the use of Oxycel—a new, absorbable, nonirritating, hemostatic agent. Oxycel absorbs blood, turns dark brown in color as illustrated above, and softens to form a smooth, gelatinous mass; it disappears from the site of implantation within a few days without interfering with normal reparative processes.

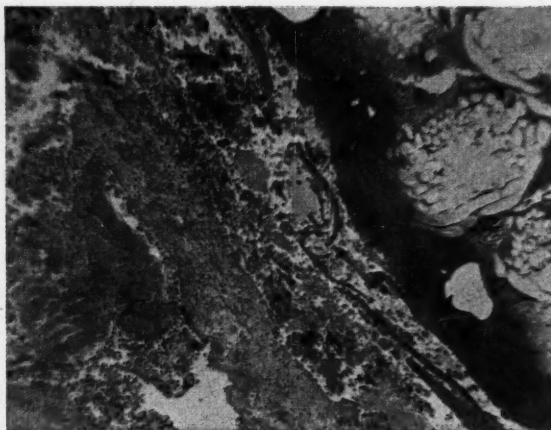
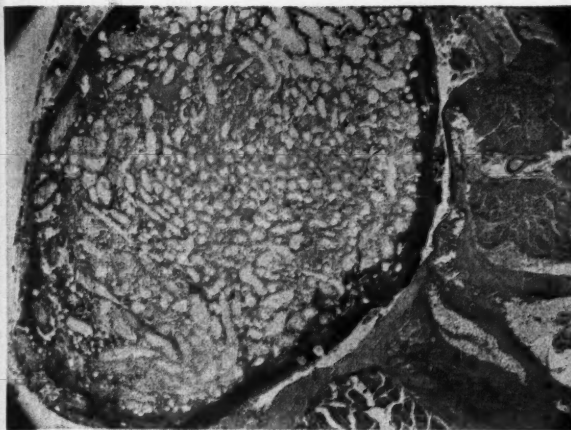


Fig. 2—(Left) A 24-hour implant of Oxycel in muscle showing blood-soaked Oxycel surrounded by coagulum. (Right) A similar implant, enlarged to show detail of the encircling

coagulum consisting principally of fibrin with early leukocyte infiltration and edema. There is minimal tissue reaction; the stain is hemalum-eosin.

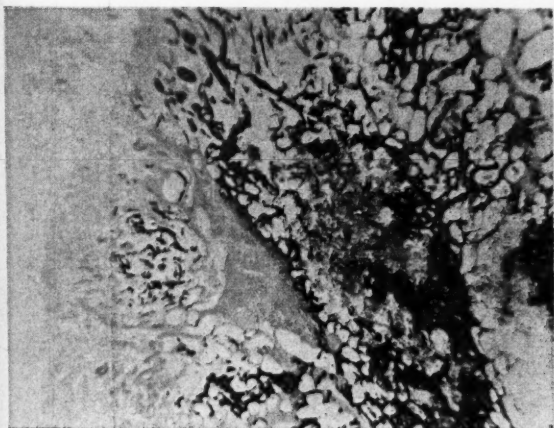


Fig. 3—(Left) Disintegration and lysis of Oxycel are features of this methylene blue-eosin stained 24-hour Oxycel implant in muscle. Oxycel induces hemostasis by coagulum for-

mation; then it is dissipated by diffusion and phagocytosis. (Right) A 7-day hemalum-eosin stained Oxycel implant; note complete absorption of Oxycel.

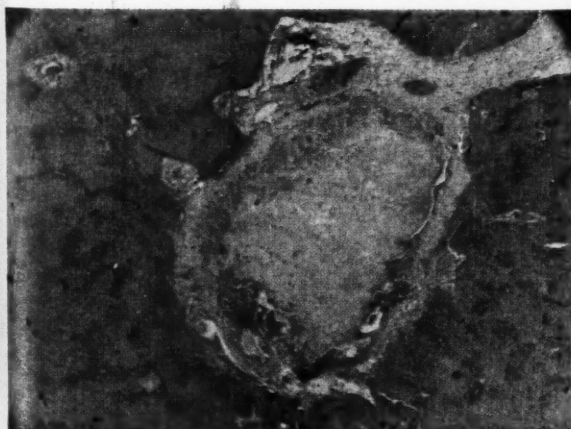


Fig. 4—Liver tissue is not significantly irritated by Oxycel implants as shown in these hemalum-eosin stained sections. (Left) A 14-day Oxycel implant in a liver wound; the Oxy-

cel is absorbed but the coagulum remains. (Right) A similar implant at twenty-one days. Note absorption of coagulum; the area is filled with phagocytes, fibroblasts and capillaries.



areas which may interfere with operative procedures, small pieces of Oxygel are applied to the surface. Most of the material is absorbed quickly and the remainder is easily removed.

3. In the treatment of gingivitis gravidarum small pieces of Oxygel, applied to the tissues, quickly control the bleeding which does not recur when the material is removed.

4. Bleeding from chapped lips or from small lesions at the angle of the mouth, which interfere with dental treatment, is stopped by applying a

piece of Oxygel to the oozing site. The material adheres readily in these places and may remain in place for the period of the operation.

5. Brisk bleeding from traumatic injuries of the soft tissues in the mucolabial or mucobuccal folds can be controlled well with Oxygel until the necessary sutures are applied. If the Oxygel, or portions of it, does not interfere with or obstruct the path of the sutures, it may be left in place and later removed should it not be completely absorbed. (A recent patient, who was injured in an automobile

accident, was treated in this manner.)

#### Comments

No acute inflammatory reactions following implantation of Oxygel have been observed, except where there has been associated infection or some irritating foreign material present.<sup>1</sup> The acidity of Oxygel is considered the probable cause of slightly delayed formation of callus in clean experimental fractures and bone defects. But if the material is removed within two or three days, there is no significant delay.<sup>1</sup>

## Stevens-Johnson's Disease in Edentulous Mouth

**CAPTAIN JOSEPH Y. REED, DC (AUS), Carlisle Barracks, Pennsylvania**

STEVENS AND Johnson<sup>1</sup> reported an eruptive fever with stomatitis in 1922. Numerous similar cases have since been added to the literature,<sup>2,3,4,5</sup> all of which have been given unwieldy names. Until a suitable name is suggested, Stevens-Johnson's disease will have to suffice for a disease with such a dramatic onset and course. Since there are many outstanding characteristics common to each reported case, it seems reasonable to separate these from erythema multiforme and complications of this nature.

#### Description

1. This disease is one of acute, occasionally fulminating, systemic reaction with fever and prostration.

2. A severe stomatitis, followed by sloughing, is highly characteristic.

3. Other types of mucous membrane besides the oral tissue, such as the conjunctivas, are occasionally involved.<sup>5</sup>

4. A period of about three weeks usually passes between the onset and

disappearance of the skin lesions.

5. Laboratory findings have been normal, including blood cell counts, blood cultures, smears and cultures of lesions, and studies of chemical constituents of the blood.

A suggestion that Vincent's stomatitis may be associated etiologically has not been confirmed. The following case being in an edentulous mouth would further substantiate the absence of any etiologic relation with Vincent's infection.

#### Case Report

A thirty-year-old man, unmarried, was admitted to Camp Barkeley Regional Hospital.

**Complaints**—The patient complained of blisters and pain in the mouth. He had lost weight and had not felt well for a week. He had had no previous illness other than, recently, an exudate from the corner of his eyes. No metals or drugs had been administered in past history that might be significant. The present illness began four days previous to admission with a swelling and tenderness on the inside of the left cheek, lower left lip, and gingivae; also, a burning sensation was experienced on taking food.

**Clinical and Laboratory Examination**—1. He was a well-developed man with evidence of loss of weight.

2. Temperature was 101° Fahrenheit on admission with a dry, burning feeling in the mouth.

3. The buccal mucous membrane, palate, gingivae, and uvula were covered with many tight, watery-like vesicles or blebs, averaging about 4 millimeters in diameter.

4. Laboratory studies revealed: normal urea nitrogen, serologic test for syphilis negative, red blood elements normal, and slight elevation of white blood count.

5. Smears and mouth cultures were negative except for a culture of *Streptococcus viridans* later in the disease.

6. Urinalysis was negative.

#### Progress of Disease

The patient remained in the hospital fifteen days. During the first five days, the mouth lesions progressed rapidly; increasingly large ulcerations were formed by the rupture of the blebs or vesicles which left a dirty-grayish-white slough. This in turn left a raw ulcerated surface with an irregular, indurated margin. These lesions soon enlarged until they completely covered the inside of the mouth on the buccal mucosa and gingivae and extended out over the lip almost to the vermillion border. The ulcerated surface was raw and deep red, bleeding readily when touched.

On the sixth day, the temperature decreased and the patient began to improve. After the eighth day, he began to recover gradually: His appetite increased and the mouth lesions

(Continued on page 685)

<sup>1</sup>Stevens, A. M., and Johnson, F. C.: New Eruptive Fever Associated with Stomatitis and Ophthalmia, *Am. J. Dis. Child.* 24:526-533 (December) 1922.

<sup>2</sup>Chick, F. E., and Witzberger, C. M.: Erythema Multiforme Exsudativum Accompanying Oral Vincent's Infection, *Am. J. Dis. Child.* 55:573-578 (March) 1938.

<sup>3</sup>Levy, A. T.: Erythema Multiforme Bullosum with Involvement of Mucous Membranes of Mouth (Stevens-Johnson Disease), *J.A.D.A.* 30:287-288 (February 1) 1943.

<sup>4</sup>Murphy, R. C., Jr.: An Eruptive Fever Involving the Mouth and Eyes (Stevens-Johnson's Disease), *New England J. Med.* 230:69-71 (January 20) 1944.

<sup>5</sup>Edgar, K. J., and Syvertson, J. T.: Erythema Exsudativum Multiforme with Ophthalmia and Stomatitis: Report of Two Cases in Children with Certain Observations on Histopathology and Animal Inoculation, *J. Pediat.* 12:151-159 (February) 1938.

# Supernumerary Upper Central Incisors

GEORGE A. MORGAN, D.D.S., Toronto

*A characterization of supernumerary central incisors based on one hundred cases observed by Doctor Morgan is given here.*

## One Hundred Cases

The occurrence of supernumerary teeth in the region of the upper central incisors is not uncommon, the estimated incidence being approximately 2 in 1000.

A series of 100 observed cases included 160 supernumerary teeth in this region. Fifty of the patients involved were over 21 years of age; fifty were between 5 and 17 years of age.

Forty-two of these 100 cases had two supernumerary incisors, a fact which indicates a definite tendency toward bilateral occurrence. Eighteen of the forty-two supernumerary incisors had erupted. The majority of the impacted teeth were found to be malposed and, not infrequently, inverted with the crown apex pointed in the direction of the floor of the nose.

In twelve of the 50 adult cases, the supernumerary teeth were assumed to be associated with cystic formation, while in four other adult cases the supernumerary teeth were observed to be in various stages of decalcification.

## Comments

1. The majority of supernumerary central incisors are inverted, conical in shape, and rudimentary in form.
2. Supernumerary central incisors are frequently found in pairs.
3. They are commonly impacted, but may be partly or fully erupted either buccal to, between, or lingual to the permanent central incisors.



Fig. 1—Girl, aged 9 years. Deciduous centrals in normal position. Two supernumerary maxillary centrals impacted in occlusal position, causing delayed eruption of permanent centrals.



Fig. 2—Boy, aged 7 years. Deciduous maxillary centrals in normal position. One supernumerary central erupted lingually; another impacted and inverted, causing malposition of permanent centrals.



Fig. 3—Girl, aged 12 years. Supernumerary impacted maxillary central incisors (odontome of composite complex type). Deciduous central in normal position between permanent central and lateral with the odontome preventing normal eruption of permanent central.



Fig. 4—Woman, aged 48. Supernumerary central impacted, decalcifying central incisors.

4. Charleroi and Long have reported cases in which a supernumerary

upper central incisor had erupted through the floor of the nose.<sup>1,2</sup>

5. Supernumerary teeth are respon-

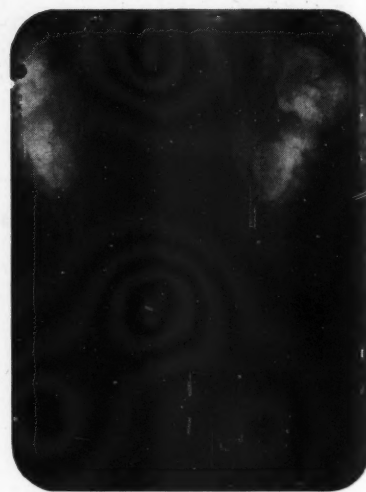
<sup>1</sup>Boval: A Case of Supernumerary Tooth in the Nose, D. Cosmos 53:1457 (December) 1911.  
<sup>2</sup>Long, G. J.: Supernumerary Tooth in Nose, D. Cosmos 66:360 (March) 1924.



**Fig. 5—**Boy, aged 10 years. Supernumerary impacted central incisor, responsible for space between permanent centrals and delayed eruption of permanent laterals.



**Fig. 6—**Girl, aged 12 years. Supernumerary impacted, malposed, inverted maxillary central. Deciduous carious right central in normal position. Two supernumerary impacted and malposed maxillary central incisors responsible for delayed eruption of permanent right central.



**Fig. 7—**Girl, aged 8 years. Impacted inverted cystic supernumerary central incisor.



**Fig. 8—**Boy, aged 11 years. Occlusally erupted supernumerary central incisor causing space between permanent central incisors and crowding of laterals.



**Fig. 9—**Boy, aged 10 years. Fusion of two supernumerary impacted maxillary central incisors, causing rotation of permanent centrals.



**Fig. 10—**Supernumerary impacted central incisor in horizontal position; maxillary central incisor associated with impacted cuspid.

sible for many complications such as: delayed eruption, non-eruption, excursion and separation of the permanent teeth. The majority of these conditions can be avoided by early recognition and careful removal of the supernumerary teeth.

When one considers the difficulty

of removal and the possibility of injury to the permanent teeth that this operation involves, a conservative attitude toward the teeth in question undoubtedly is justified. In view of the relatively large percentage which become cystic, however, it is important that periodic roentgenologic ex-

amination be advised, so as to prevent the possible extensive loss of teeth, involvement of the maxillary sinus, and other complications which are so often associated with these conditions.

170 St. George St.



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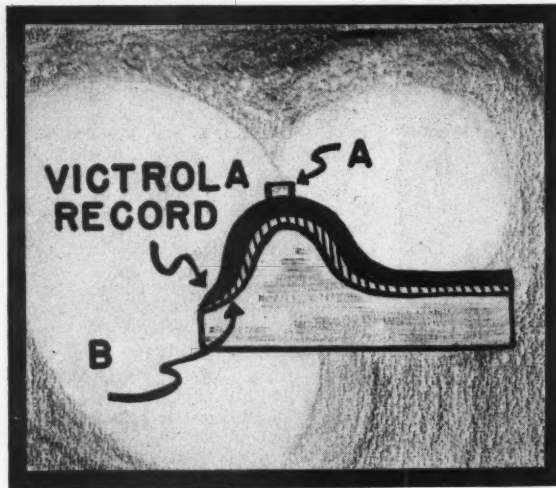


Fig. 1

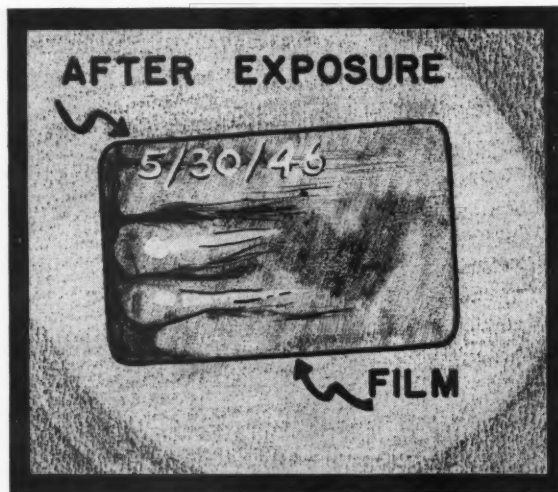


Fig. 2

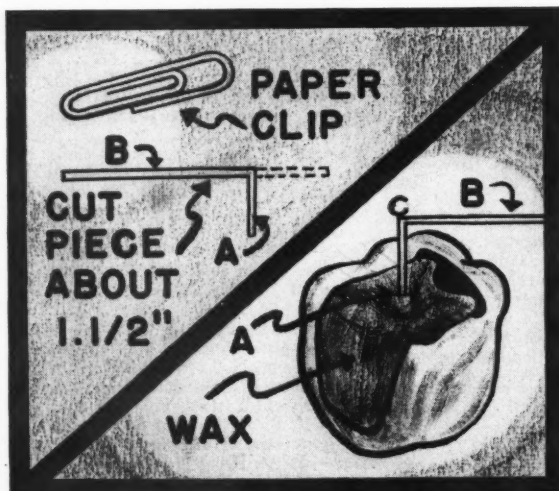


Fig. 3

## Individual Impression Tray with Uniform Space for Impression Material

Rudolph J. Friedman, D.D.S., Mt. Vernon, New York

Fig. 1—Adapt a piece of asbestos liner to a model made from a snap modeling compound impression. Two layers of asbestos may be used if desired. When the asbestos is still moist, it is removed from the model and trimmed with shears to exact size. It is replaced on the model. A piece of phonograph record (Victor Blue Label Records seem best for this purpose) is laid on the model over the asbestos. The record is softened with a blow torch and adapted with a towel. The record is trimmed with small shears while still hot. The space between the model and the phonograph record impression tray that is provided by the asbestos is sufficient to accommodate a plastic impression material.

## Dating of Individual X-ray Films

G. C. Hare, D.D.S., Toronto

Fig. 2—Dating of individual x-ray films is desirable, especially in root canal therapy. With a steel stylus, such as the one used by cartoonists working on stencils, indicate the date or any other data desired firmly on the tube side of the x-ray film before exposing the film. The pressure of the stylus destroys the silver salts and prevents them from reacting to the x-ray.

## Removal of a Wax Pattern From Inaccessible Places

Alexander Swett, D.D.S., Brooklyn

Fig. 3—Straighten a paper clip. Cut off a piece of the strip about 1½ inches long and bend it at a right angle. Using a carborundum disc, cut a nick at the point that is to be inserted in the wax. Warm the point and carry to place in the wax pattern. When cooled, remove the pattern. Cut the metal at point (C). The short end that is embedded in the wax is used as the sprue former.

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## Interproximal Stripping

Bernard H. Wasserman, D.D.S., New York

Fig. 4—Difficulty is encountered in passing polishing strips interproximally, particularly in the posterior teeth. To obviate some of these difficulties, cut a finishing strip obliquely so that the strip is tapered for a distance of about three-fourths of an inch (A). The point of the strip is impregnated with a thin layer of sticky wax by using a hot spatula laden with wax (B). The wax gives the strip added body and waterproofs the strip end. The waxed end is held in the beaks of a pair of cotton pliers and forced through the interproximal embrasure (C).

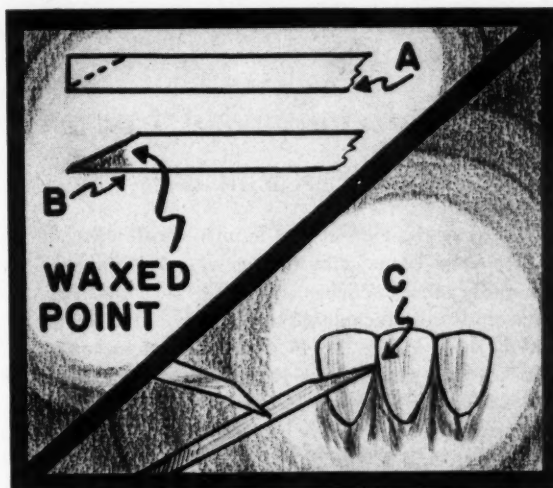


Fig. 4

## Three Useful Items From a Discarded Chip Blower

Lieutenant Robert R. Goodhart (DC) AUS, Fort Oglethorpe, Georgia

Fig. 5—The rubber bulb and the metal part of a chip-blower are cut at the places shown in the left section of Figure 5. The tip part (A) may be adapted to make a pin-point torch for use in setting up teeth and in simple soldering. The part (B) may be used as a small funnel. The rubber bulb (C), when cut along the line indicated, is useful as a small mixing bowl.

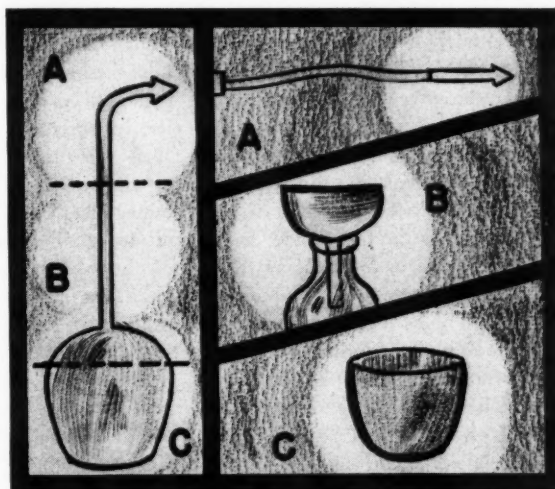


Fig. 5

## Adjusting and Polishing Contact Points of Inlays

Chester J. Henschel, D.D.S., New York

Fig. 6—A tandem mandrel in the dental handpiece will, without bothersome change of instruments, grind excess gold, satin finish the surface of the inlay, or produce a high polish. If a long thread mandrel can be secured, the tandem may consist of a carborundum stone, a rubber abrasive, steel grit wheel, and a tripoli wheel. For average use, the carborundum stone or the rubber abrasive steel grit wheel is sufficient.



Fig. 6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

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# Oral Manifestations of Iron Deficiency

W. J. DARBY, M.D., Ph.D., Nashville

THE RECENT recognition that lesions of the buccal tissues may be due to vitamin B complex deficiencies has led to the unjustified assumption by many that *all* such lesions are manifestations of vitamin deficiencies. Attention has been directed repeatedly, however, to the multiplicity of etiologies of such oral lesions.

## Clinical Observations

*By Waldenström*—In a too little known paper, Waldenström has presented clinical evidence interpreted to show that "fissures in the corners of the mouth, sores on the tongue . . . may be healed after a sufficient administration of iron without any other therapy." Waldenström did not demonstrate that his cases were resistant to therapy with the B complex; hence his conclusions might be criticized on the grounds that the patients may have taken a better diet during the period of iron therapy and thereby have overcome a concomitant B complex deficiency. The studies he reports do not permit a decision as to whether glossitis and cheilosis may be a manifestation of iron deficiency *per se* or whether their association with hypochromic anemia is due to an accompanying B deficiency.

*By Vanderbilt University Hospital*—That atrophic lingual papillae, glossitis and/or angular fissures which accompany iron deficiency anemias are often due to the lack of iron *alone* and *not* to accompanying B complex deficiencies is indicated in cases studied at the Nutrition Clinic of the Department of Medicine of Vanderbilt University Hospital. It has been a common experience in this clinic to encounter patients, especially women, with these recurrent oral conditions—and accompanying easy fatigability, indigestion, "nervousness" and other symptoms frequently ascribed to "subclinical B complex deficiency"—which failed to respond to therapy

with adequate doses of pure or crude B vitamins. Many of these patients had histories of adequate diets.

Iron absorption tests were carried out in some of the cases by a technique utilizing radioactive iron. The absorption by an adult of more than 5 per cent of a test dose of radioactive iron was interpreted as definite evidence of the existence of an iron deficiency.

Case 1. This case presented the so-called classic symptomatology of "subclinical B complex deficiency"—a previous diagnosis of "subclinical pellagra," oral lesions, easy fatigability, constipation and a bout of diarrhea—yet there was no response at all to nine weeks of therapy with thiamine, niacin and riboflavin. She exhibited a mild hypochromic anemia, conditioned by excessive menstrual bleedings, and there was a very high iron uptake which made it certain that she was deficient in iron. One week of iron therapy was followed by subjective relief from soreness in the mouth, and within three weeks the appearance of the tongue was normal. These responses were accompanied by a satisfactory rise in the hemoglobin level and, interestingly enough, dramatic relief from a persistent pruritus vulvae.

Case 2. The history suggested a mild Plummer-Vinson syndrome (characterized by stomatitis, dysphagia, and hypochromic anemia). The lesions of the tongue observed in this patient intermittently over a period of sixteen years were always accompanied by a hypochromic, iron deficiency anemia which could be attributed to abnormal blood losses. Again, the high iron absorption and the response to therapy proved the existence of the iron deficiency. Iron was administered without previously administering B vitamins in order to determine whether the tongue lesions would respond to this single agent.

(It is not believed that the diet of the patient was altered during the last therapeutic trial, as no instructions were given her concerning diet and she did not gain in weight during the interval.)

Case 3. This was also a case of Plummer-Vinson syndrome and illustrated (1) the complete absence of any effect on the oral lesions or the dysphagia by B vitamins and (2) the prompt and complete response to iron.

Case 4. The findings in this case suggested a diagnosis of ariboflavinosis, but failure of the ocular lesions to respond to a reasonably satisfactory level of intake of riboflavin seemed to contradict such a diagnosis. In view of the coexisting iron deficiency, the typical appearance of the lingual lesions and the response of the oral lesions alone, it was later deemed more reasonable to attribute the oral lesions to the lack of iron; at first, however, it was thought that this response of the oral lesions was due to the riboflavin.

This case illustrates the confusion which may arise in the interpretation of the efficacy of a therapeutic agent unless the agents are tested separately, a point not always appreciated in published case reports.

Case 5. The recurring perlèche and atrophy of the tip of the tongue of this patient appeared after the development of a mild anemia of the iron deficiency type; it recurred despite therapy with B vitamins but has remained cured for nine months following the administration of iron. This treatment with iron resulted in a small but definite increase in the concentration of hemoglobin.

Case 6. This woman represented an iron deficiency due to excessive blood loss, accompanied by the development of angular fissures. These fissures, as well as the anemia, responded promptly to therapy with iron alone.

## Conclusions

1. The representative cases studied at Vanderbilt University Hospital were interpreted as indicating that iron deficiency *alone* may be manifested by fissures at the labial commissures and by a superficial glossitis.

2. Such an interpretation is consistent with the results obtained in 4 other cases of Plummer-Vinson's syndrome reported by another investigator, in which the oral lesions healed rapidly following iron administration. (It is of considerable interest that one of these cases was treated for eleven days with liver extract number 343, N.N.R. with no improvement in the oral lesions until iron was added.)

3. All of these experiences confirm the conclusion of Waldenström that the lesions of both the mucosa and the dysphagia are cured by sufficient administration of iron with no other therapy.

4. That such lesions are often confused with the oral signs of B complex deficiencies is evident from the therapeutic measures which were first instituted in most of the cases reported.

5. The records in these cases covered a period of time sufficient to de-

termine the ineffectiveness of B vitamin preparations and the efficacy of iron.

a) No relapses during iron therapy were observed in any of the subjects, in contrast to results in some of the reported cases of ariboflavinosis.

b) The therapeutic response to iron was rapid (one to three weeks), again in contrast to the response in lesions of the tongue attributed to "chronic niacin deficiency."

c) The regeneration of the lingual papillae in iron deficiency was not brought about by the administration of B complex vitamins.

#### Comments

It is not the intention here to deny that a deficiency of riboflavin, niacin or other B complex factors may, and sometimes does, give rise to glossitis or cheilosis; rather, it is emphasized

that another cause of these signs is iron deficiency. Stomatitis due to iron deficiency is now encountered much more frequently in the Vanderbilt Hospital Nutrition Clinic than is riboflavin or niacin deficiency cheilosis and glossitis. This fact has prompted a study of the correlation of such oral signs, occurring within the general adult population, with the hemoglobin levels of the population. A composite of data which was tabulated from the results of three separate nutrition surveys suggests that there is a much more frequent association of these signs with low hemoglobin levels than with high hemoglobin levels. This illustrates the unreliability of a single clinical sign as the sole evidence for assessing the nutrition of a population.

—From *Journal of the American Medical Association* 130:830-835 (March 30) 1946.

## Diphtheric Gingivitis and Stomatitis

HOOGENDOORN treated a number of persons for gingivitis. In one of these a smear was positive for diphtheria bacilli. Cure required a month, but specific antidiphtheric treatment was not used. The search for diphtheria in other patients with gingivitis was negative.

In one patient with a severe refractory gingivitis, administration of anti-

diphtheric serum resulted in rapid improvement. Examination of the oral cavity of 26 of 35 men who had been associated with this patient revealed 2 bacillus carriers and a number with enlarged tonsils or gingivitis.

Patients with gingivitis who do not promptly react to the usual treatment should be examined for the presence of diphtheria bacilli. If there is an

epidemic of gingivitis or if a patient with gingivitis has had contact with a diphtheria patient or carrier, bacilli should always be searched for and, when they are detected, specific therapy should be instituted.

—From *Current Medical Literature, The Journal of the American Medical Association* 132:481 (October 26) 1946.

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## In your ORAL HYGIENE this month

A civilian practitioner offers a defense for the wartime dental service furnished the public.

### A Little Mercy for the Older Dentists

"A Little Mercy for the Older Dentists"—Doctor Burke W. Fox explains to the younger men of the profession why thoughtless criticism of the work of older men may react to their own disadvantage and to the detriment of the entire profession.

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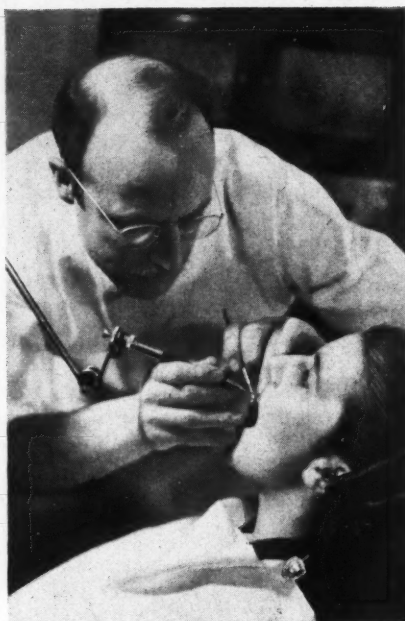
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"Syphilis—An Occupational Hazard of the Dentist"—Doctor Lester Hollander, Medical Director of the Pittsburgh Skin and Cancer Foundation, explains the manifestations of syphilis and describes the pre-



cautions a dentist should take to avoid infection from syphilitic patients. "Syphilis," says Doctor Hollander, "is an occupational hazard of the dental profession. It is infrequent, but it should be completely eliminated. If infection occurs, it must be treated in the light of our present-day knowledge combining antibiotics, treponemacides, and tissue protective substances, to obtain the quickest, safest, and surest cure."

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"Suggestions to the Program Committee"—Do your guest speakers look forward to invitations from your group or are they lukewarm after one experience with your program committee? Thoughtfulness can avoid and avert much criticism and attract the speakers you want for your meetings.

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"Report From the Miami Session of the A.D.A."—a short outline of the transactions of the House of Delegates by Doctor W. Earle Craig, past-president, Pennsylvania Dental Society.

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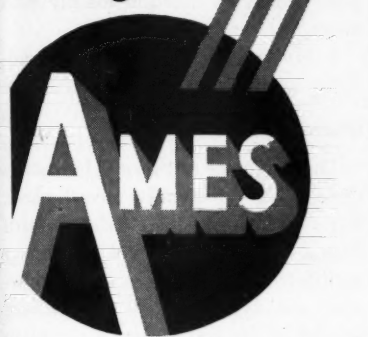
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### Stevens-Johnson's Disease in Edentulous Mouth

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slowly disappeared after the tenth day, and, by the fifteenth day, ulceration had completely subsided. By the end of the third week, the skin lesions had completely healed and the scars were barely visible.

### Treatment

There is little known of the treatment of this disease; however, it is logical to treat the mouth lesions with as extreme care as any severe stomatitis.

1. Caustics, as sometimes used in treating a Vincent's stomatitis, should not be used.

2. Sulfadiazine was administered internally, mainly to eliminate secondary infection.

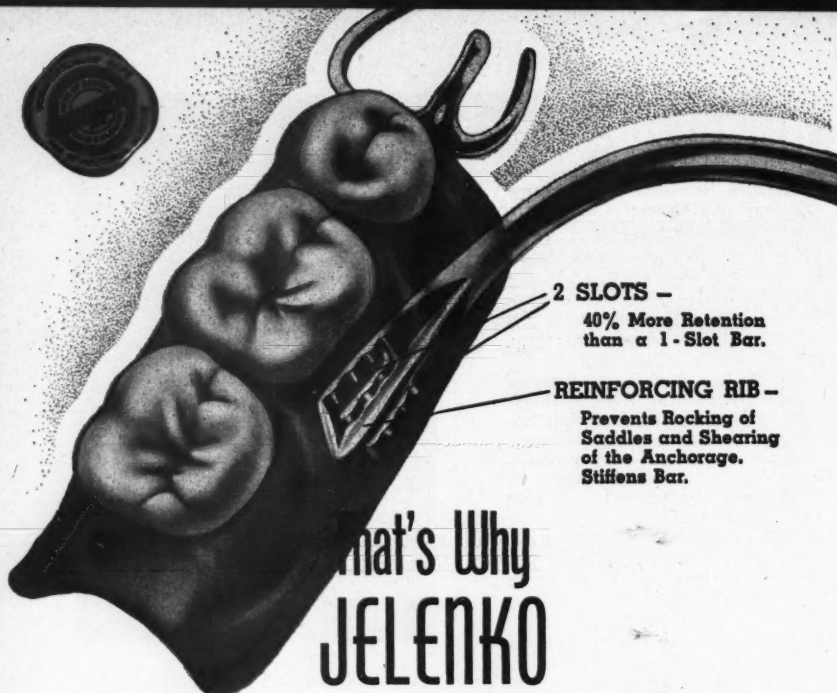


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3. Salt-free, soft diet was given because of the laboratory report of high chloride content.

4. Gentian violet 1 per cent was applied locally to function mainly as a bacteriostatic.

5. Multivitamins were given in addition to the above treatment.

### Discussion

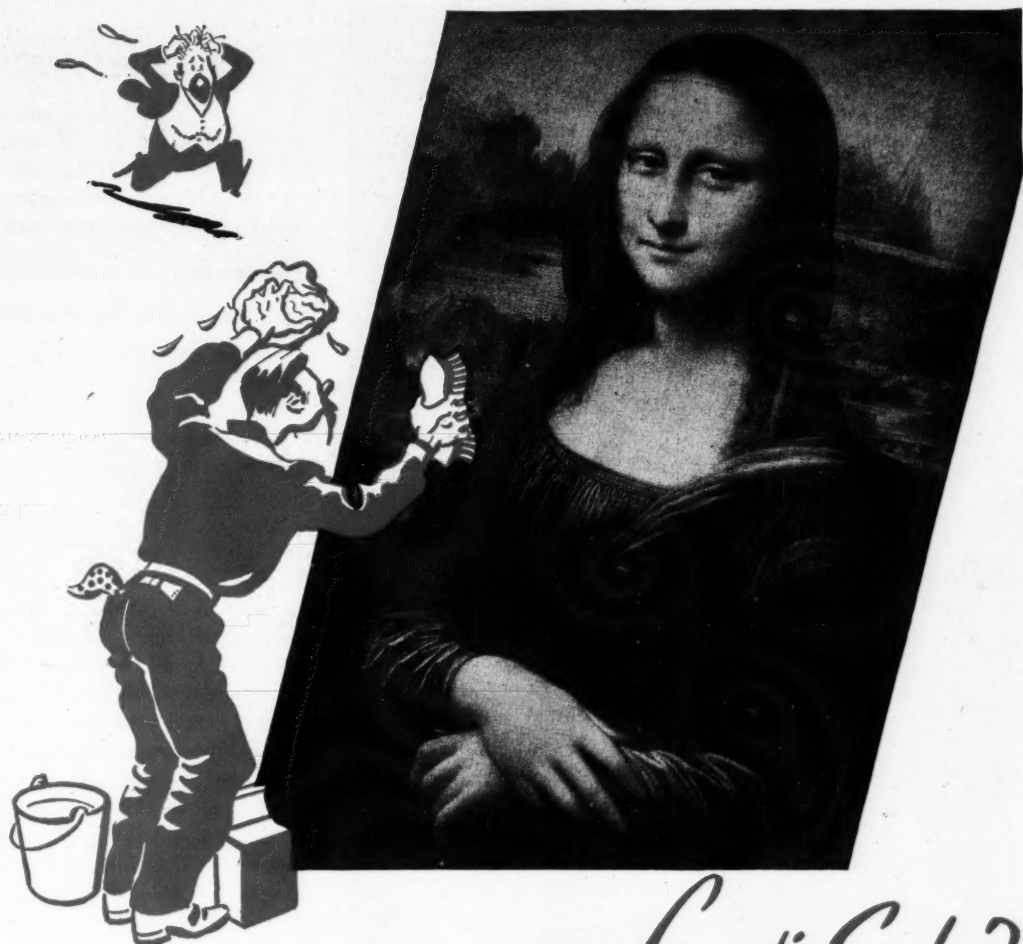
The diagnosis of Stevens-Johnson's disease is frequently overlooked. Since this disease is confused with Vincent's stomatitis and erythema multiforme, it is important that characteristic symptoms of the disease should be checked against a complete history and laboratory examination. The lesions on the oral buccal mucosa reported in this case were similarly reported in previous cases; however, since this patient was edentulous, the possibility of diagnosing such a case as Vincent's appeared to be less likely.

### Summary and Conclusions

This disease has been classified at times under a type of erythema multiforme, which is an unsatisfactory name. Possibly a more characteristic name would be ulceromembranous bullosum, a form of stomatitis. The condition starts with a violent systemic reaction and marked prostration. Then the characteristic vesicular stomatitis develops, the vesicles burst rapidly and a membranous slough forms that leaves an angry, raw buccal and palatal surface. Another variable symptom is a diffuse conjunctivitis. Nothing is known of the etiology. Correction of diet in the case reported seemed to be an important factor in recovery. Sulfathiazole seemed to be an important treatment factor in keeping down secondary infection.—From *The Bulletin of the U. S. Army Medical Department* 5:111-113 (January) 1946.

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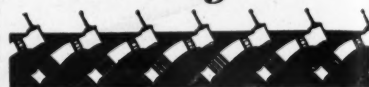
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## Contra- Angles



### The Scrofulous Toothbrush . . .

A person's toothbrush is his private affair. How many brushes he has, how often he renews them, are matters for his own conscience. Some of the fastidious men who wear \$5 ties and the women with their \$50 hats have ragged, jagged, filthy brushes with tired and drooping bristles.

I am not sure what the life of a toothbrush is supposed to be any more than I know how long a pair of shoes should last. The service that is received, the wear and tear, are factors. Obviously the person who brushes his teeth three times a day will wear out a brush three times faster than the fellow who gives his teeth a lick and a promise once a day. According to a study made by Hamilton B. G. Robinson of Ohio State University, the average person spends sixty-seven seconds brushing his teeth. The person who uses his brush three times a day uses up not quite three and one-half minutes of time. At that rate, a brush should last considerable time. How long, I hasten to say I do not know. The wetting of the bristles and the drying probably speed up the disintegration of the bristles.

This matter of the virility of the toothbrush is something that has recently come up for discussion by one of the popular columnists, Howard Vincent O'Brien of the *Chicago Daily News*. Here is what he says on the subject: "The average toothbrush is kept in service long after it has lost whatever aesthetic appeal it might have had, and has become a haven for assorted bacteria.

"A curious thing, this attachment of a person to his toothbrush. It isn't mere parsimony, either; for a man will think nothing of smoking away two bits' worth of Stinkadoro or pay-

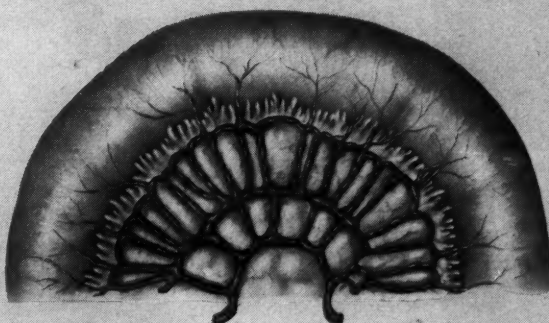
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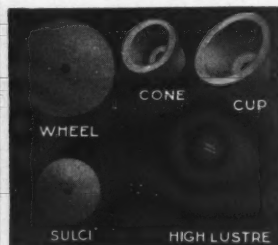
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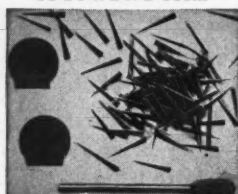
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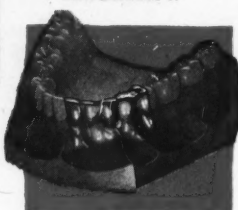


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ing \$1 for a beaker of night club rotgut. But he will hang on to a scrofulous toothbrush as if it were one of his kidneys."

I don't think that the toothbrush manufacturers have made users conscious enough of the need for changing brushes. They are so busy shouting the praises of their own particular kind of bristles and their own peculiar twists of the brush handle that they haven't taken the time to make people conscious of the scrofulous toothbrush that should be renewed frequently. It would be fun to prowl around in the fancy bathrooms of our prominent people and see what kind of brushes they are using. The same people who are so meticulous about the cut of their clothes are very likely using droopy brushes that harbor bacteria and filth. If some smart advertising copywriter picks up this idea, he should be able to make a smashing good story. The idea is tossed out for free for anybody that may want to use it.

## What Do You Mean by Dental Economics?

I always cringe when I hear somebody billed to talk on the subject, dental economics. The subject is about as broad and all inclusive as "religion," "astronomy," "philosophy." If dentists mean a program on practice management, that is something different. That merely means the things that go on inside the dental offices—bookkeeping measures, cost accounting procedures, efficient methods, and such things. Dental economics represents that large field of the dentist's integration in society gener-

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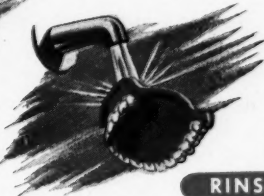
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Hold under running water to rinse—  
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ally. There is no narrow and circumscribed connotation to the expression, dental economics, no more than there is to the subject, medical economics. Doctor R. P. Vivian, Professor of Health and Social Medicine, McGill University, Montreal, Canada, has this to say: "Medical Economics cannot be considered as an isolated subject. It must be thought of in relation to the entire economy of the local community and of the state. The provision of vast sums of money for health from tax sources is one thing. Its provision in relation to the economy of the state is quite another. The wise provision of suitable sums and their careful expenditure in relation to value received should certainly be the objective."

"These services cannot be provided solely on a treasury-minded basis; namely, a cash surplus. Neither can we jeopardize the entire economy of a country by providing, for purposes of political expediency, an ineffectual program at great cost. The need to do something, however, is urgent. Much could be done by adapting our present resources. The adaptation of our facilities and the training of personnel can only be achieved if we expand our interpretation of the practice of medicine. For obvious reasons we have been concentrating upon what we could do for disease as an entity. Man, however, is not something set apart. He belongs to a family, or a group, or a community. In treating man's diseases we must, therefore, consider man as a social being and take into account those factors in society which play an important part in his well-being. The practice of medicine must consider more than what it has learned through pathology and bacteriology. The applied sciences of physiology and biochemistry must be given greater opportunity. The social sciences must be taken into greater account. The future practice of medicine will be greatly benefited by what it can learn from a study of sociology in relation to medicine. In this way, we can achieve a more effective co-ordination of all the services which go to make up the practice of medicine. Such thought has given rise to the develop-

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ment of a new branch of medicine, a branch which concerns itself with the study of the social factors that influence the attainment and maintenance of health. This new branch, social medicine, is as much a part of medicine as any other designated branch. It should not be confused with so-called socialized health services. Social medicine may be new as a subject but it is not new as an interest. Its emergence as an entity is simply

a recognition of an aspect of medicine that needs to be developed. Its task is to show the way as to how all the services in the practice of medicine can be developed and co-ordinated in relation to society."

We are hearing more about dental economics in this larger sense, as a part of the economics of health, which in turn is a part of the economics of living. Dentistry is not practiced in a vacuum free from the tides and

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for dentures of distinction,  
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currents of economic life. So, the next time you hear somebody scheduled for a talk on dental economics, insist that he talk on the wider aspects of health care. If you want to hear about the internal affairs of a dentist's practice, insist that the subject be billed as "practice management."

## Sorry, I Do Not . . .

There is a column in the *Roche Review*, LEAVES FROM A DOCTOR'S

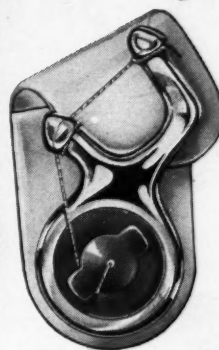
DIARY,<sup>1</sup> written by Doctor Maurice Chideckel. It is too bad that this fine, warm, human interest column isn't generally circulated to the medical and dental professions. Doctor Chideckel speaks his mind with fine candor and with vigor. Not long ago he had a piece about the surgeon who operates just to operate. But let him say it in his own words: "It's much

<sup>1</sup>Chideckel, Maurice: Leaves From a Doctor's Diary, *Roche Review* 10:341 (June-July) 1946.

easier to cavi than to create. Not much talent is needed to criticize and to disparage. And yet.

"Take little Walter, for example. His tonsils were smooth and healthy, though visible. The child suffered from nothing. Yet they were removed because they were tonsils. I don't know the function of the tonsils. Nobody does. But Nature is no idiot, and the tonsils most likely were put there for the welfare of the child. Perhaps the tonsils belong to the hematopoietic system, supplying the blood with lymph cells. Maybe they have an endocrine function. Perhaps they form a part of the defense mechanism of the body, absorbing a small number of organisms. 'Why did I perform a tonsillectomy on little Walter?' repeated my friend, the laryngologist. 'Why, because they are not essential for the maintenance of life. They may give trouble later on. Why not remove them now?' Well, the reproductive organs are not essential to life. Would you remove a healthy uterus, healthy ovaries and tubes?"

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Think of the trouble they give. One can live without a spleen. Would you subject everyone to a splenectomy? Do you remember that you were treated for a specific urethritis when you were a student. Perhaps you think it would be, for preventive purposes, a good idea to perform an amputation of—oh, well; you are a nose and throat specialist. You just can't exist with the tonsils in.

"And what about Milton Keifer? Sure, he had a congenital cardiac lesion, patent ductus arteriosus. But his heart was fully compensated. He had no symptoms, was married and happy. He was 24. True, he most likely would cease to be asymptomatic after he reached forty, but was an immediate operation indicated? The operation was a fine piece of surgery, but he died from hemorrhage. This man paid with his life for the advance in thoracic surgery. 'An operation is an operation, and a patient is a patient. Do you understand?' So spoke the learned and brilliant surgeon. Sorry, I do not."

Immediately comes to mind some of our own dental colleagues who are too quick with the scalpel and too anxious with the forceps. I have seen a good many of the boys, when they get out of dental college, decide that the life of blood and gore is the life for them. They want to be surgeons. They buy themselves some tools and frequently toss in a pair of rubber gloves and a face mask. They are ready to be surgeons of the first degree. Some of these lads, in their frenzy to draw blood, remove teeth that shouldn't be removed, notably the third molars in young people. They are also rather quick to remove a tooth for anybody and mighty glad to have the chance to use the curet and the rongeur forceps. Naturally, there is a place for surgery. A lot of people owe their present state of good health to the surgeon's skill. This, of course, includes the dental surgeon. There are other people, also, who owe their ill health to the gentlemen too ready with their knives and forceps.

There is nothing like mature judgment; judgment is as important as skill. Judgment, though, I suppose,



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## CLINICAL AND LABORATORY SUGGESTIONS

### Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor  
THE DENTAL DIGEST  
708 Church Street  
Evanston, Illinois

From: \_\_\_\_\_

Subject: \_\_\_\_\_

Explanation of Procedure:

Sketch:

\$10 will be paid to author on publication of accepted suggestions.

is of two kinds, innate and acquired. Some people are born with a highly developed intuitive judgment, horse sense, we call it. Acquired judgment comes from observation, experience, and reflection. I suppose the ideal surgeon or the ideal anybody, for that matter, would be the person who was born with good sense, developed it a lot more during childhood, and acquired a lot of it in his adult years. If you can add to this combination, highly developed skills, whether they be those of the surgeon, the bricklayer, or the airplane pilot, you have a personality of real substance. The skill alone, without the judgment, can get one into trouble and the judgment without the skill can get the other fellow into trouble.

### Gazing in the Crystal . . .

Many of my friends who have been feverish with fear over the last fourteen years have taken a deep sigh and folded their hands on their bellies. They say now that the "Leftists" and the "New Dealers" and the "Communists" have been chased out of office and that the good old staunch Conservatives have been returned, that there is no reason to fear health insurance or any other diabolic form of cold state medicine. As I see it, it isn't that simple. The idea of social security is here to stay. Nobody, not even Mr. Taft, is going to propose that unemployment insurance and old age and survival insurance be thrown out the window. Too many people have experienced at firsthand the advantages of social security.

If the Eightieth Congress is too reactionary and too much to the right, there will be a fierce liberal upswing of sentiment in 1948. The Labor people, although they were definitely beaten in the 1946 Congressional elections are going to be extremely aggressive in 1948. There is nothing to make us think that they will lose interest in some kind of federal health legislation. So, whoever sits back and thinks the danger of a national health system is past is lulling himself under a false cloud of security. The battle against a national health insurance system is not over and it is not won.  
—E. J. R.



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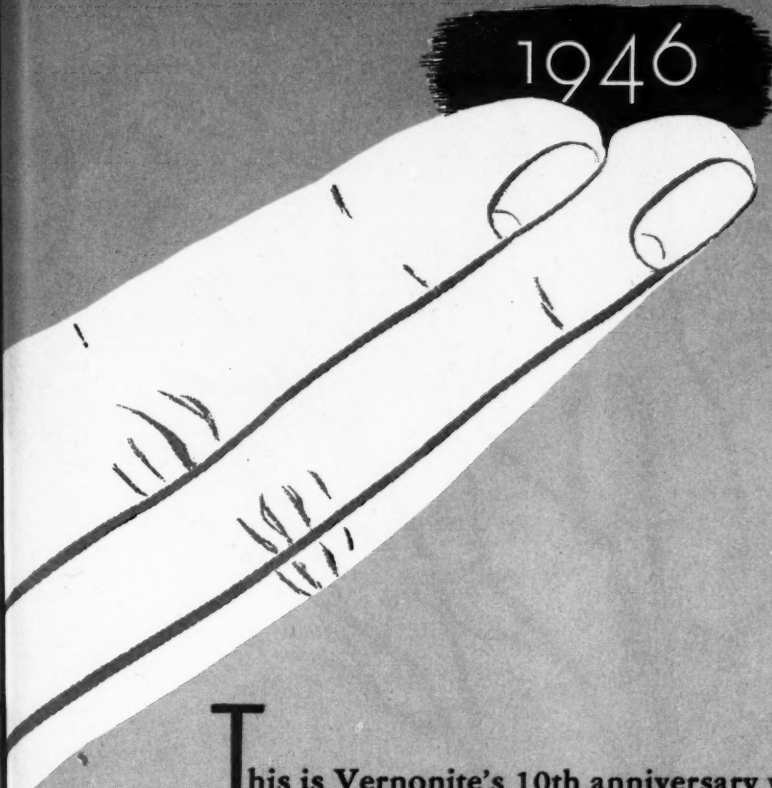
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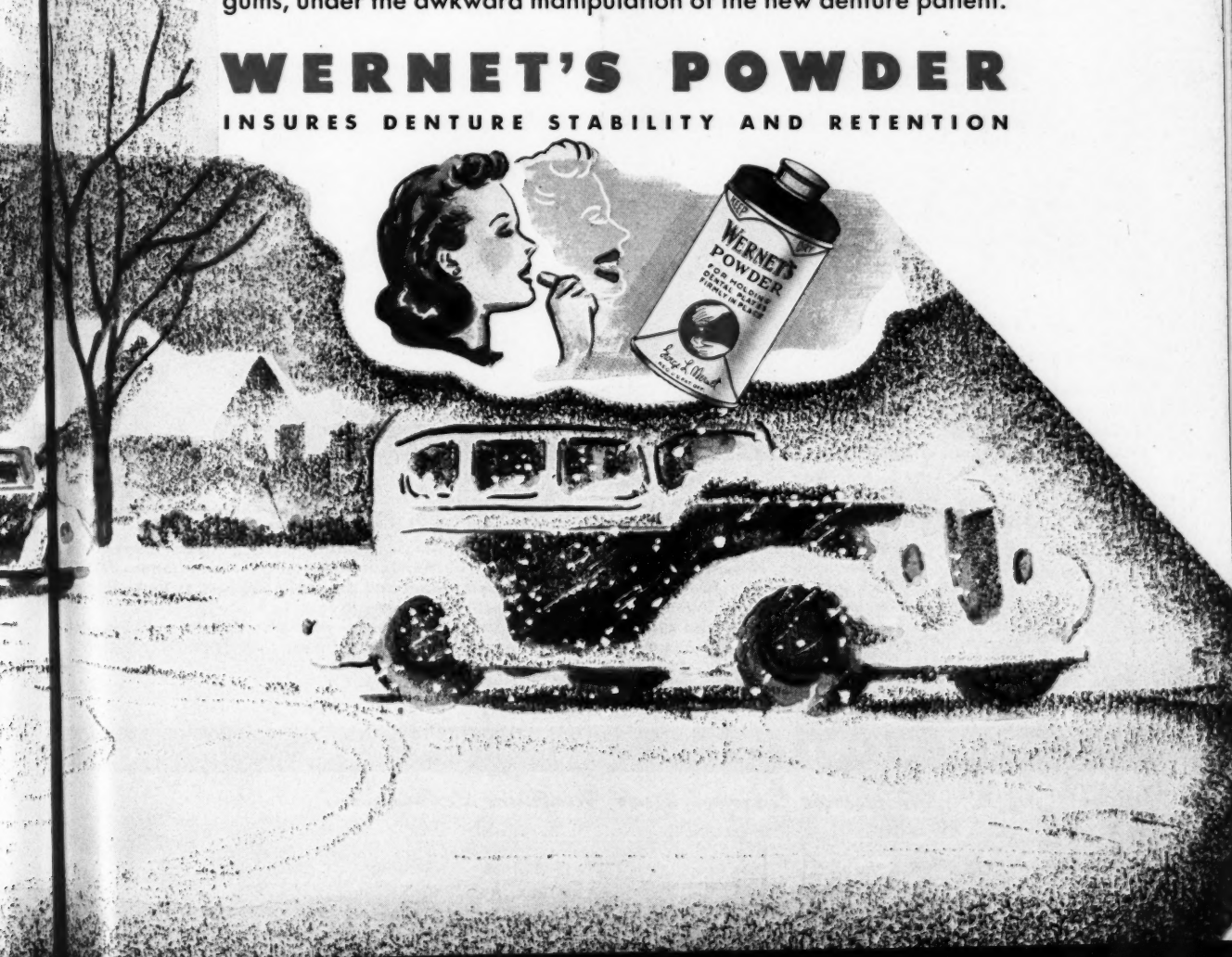
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- c. Place softened compound stick over posterior periphery and extending over tuberosity region of tray.
- d. While soft place in position in mouth moving tray in each direction laterally to maintain space.

This will create a posterior border seal. This must not be confused with post-damming. Continue as follows:—

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- f. Place in mouth making certain tray is in position and carries the MUCO-SEAL impression material to all peripheral borders.
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- h. Remove, pour model and post-dam 4mm. wide, 1½ mm. deep from notch to notch.
- i. Retain full height of ridge on finished denture. Finish with ⅛" (approximately) roll around entire periphery.



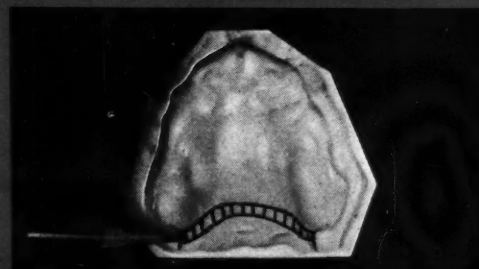
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as well as full Lowers



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Model and post-dam (as h)

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**THE DENTAL DIGEST** 1005 Liberty Ave.  
Pittsburgh 22, Pa.

# THE DENTAL Digest

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EDITORIAL OFFICE

708 CHURCH STREET

EVANSTON, ILLINOIS

EDWARD J. RYAN, B.S., D.D.S...Editor  
MARIAN ZIERATH, B.S.....Assistant Editor

Manuscripts and editorial correspondence should be addressed to the Editorial Office.

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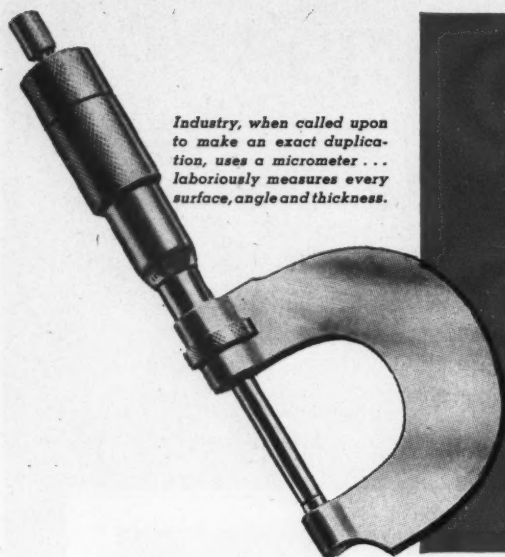
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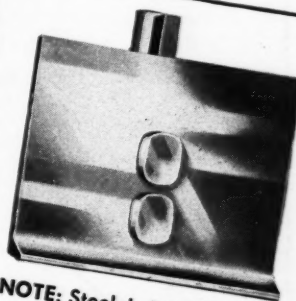
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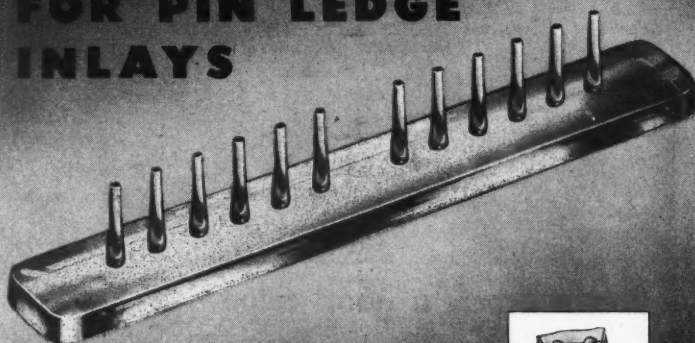
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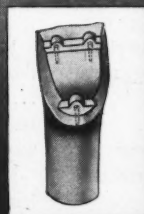
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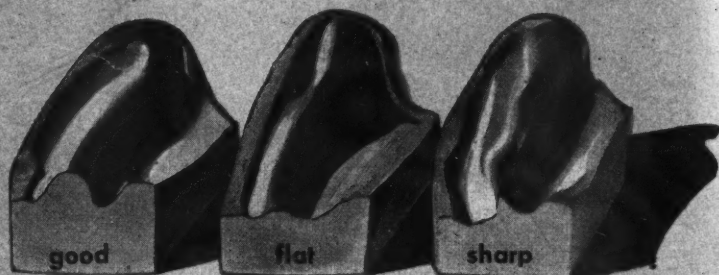


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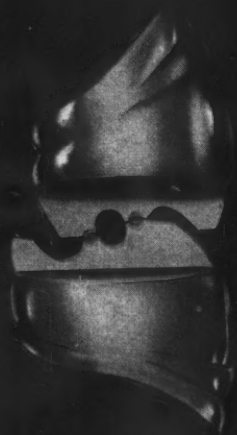
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